Railway Age

FEBRUARY 27, 1943

Founded in 1856

McCARTNEY LIBRARY
GENEVA COLLEGE

Crystal Gazing
WON'T BRING VICTORY

NEITHER crystal gazing nor wishful thinking ever won a war.

VICTORY requires action . . . as typified by the 1942 performance figures of American railroads in shattering all previous records in operating efficiency, such as — all-time record freight traffic — all-time record locomotive mileage — all-time record equipment utilization.

Such performance must be continued—all equipment must be maintained and operated at peak efficiency. General Motors Diesel Locomotives, in all classes of service, are playing an important part by providing — greater hauling capacity — reduction in train miles — faster schedules—greater availability — and marked reductions in operating costs — all for VICTORY and PEACE because —

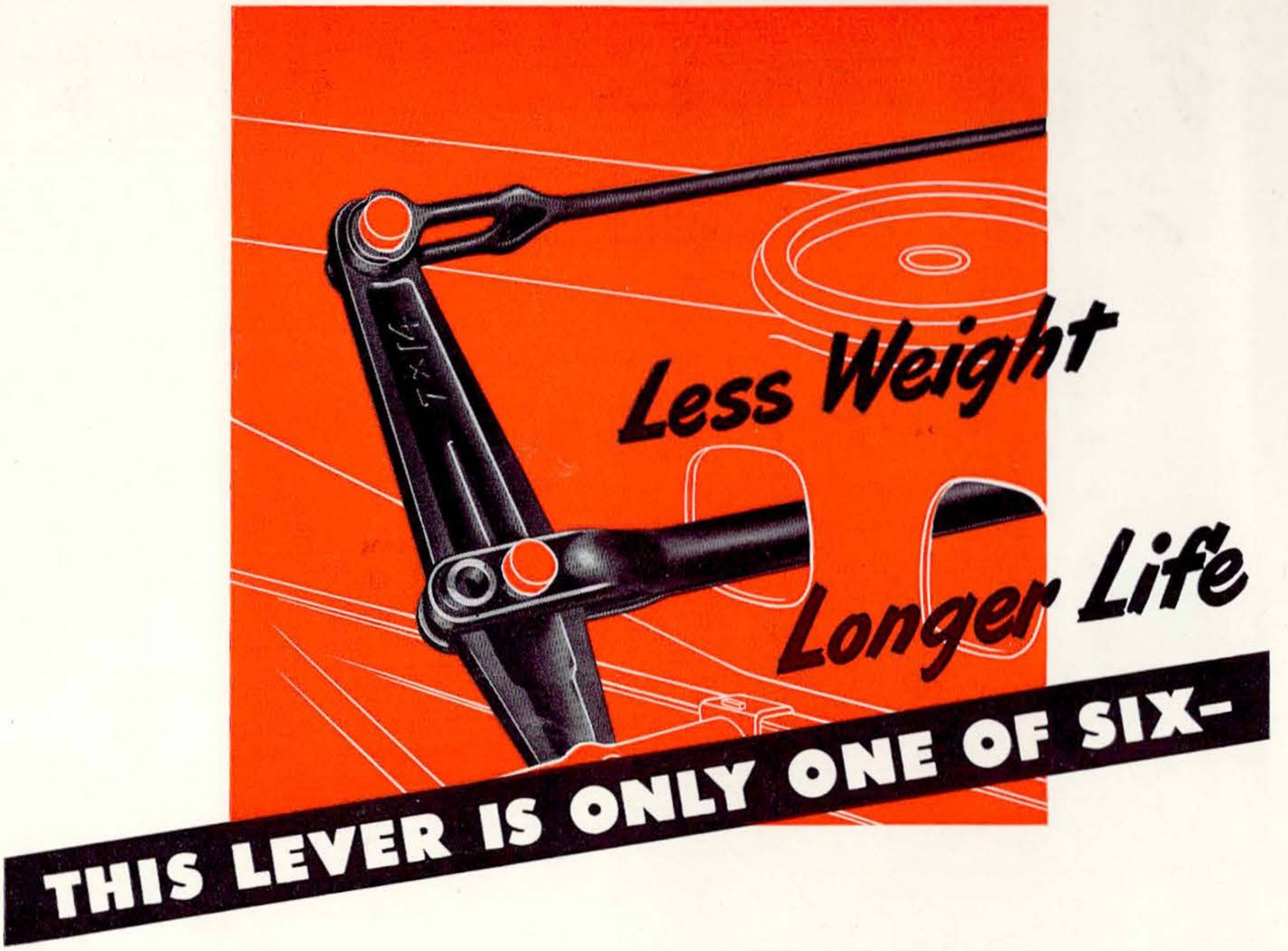
VICTORY IS OUR BUSINESS

GENERAL MOTORS
LOCOMOTIVES

ELECTRO-MOTIVE DIVISION

GENERAL MOTORS CORPORATION

LA GRANGE, ILLINOIS, U.S.A.



This is only one of the Schaefer Forged Steel Foundation Brake Gear Appliances that are helping to speed thousands of freight cars carrying vital war materials — lengthening the time between car shoppings for repair and replacement of brake gear parts — conserving man hours on overworked repair tracks.

Schaefer EQUIPMENT COMPANY

KOPPERS BUILDING • PITTSBURGH, PA.

LOOP, "U" AND STIRRUP TYPE BRAKE BEAM HANGERS ... TRUCK, CYLINDER AND FLOATING LEVERS
TRUCK LEVER CONNECTIONS ... BRAKE ROD JAWS ... WEAR PLATES ... BRAKE SHOE KEYS

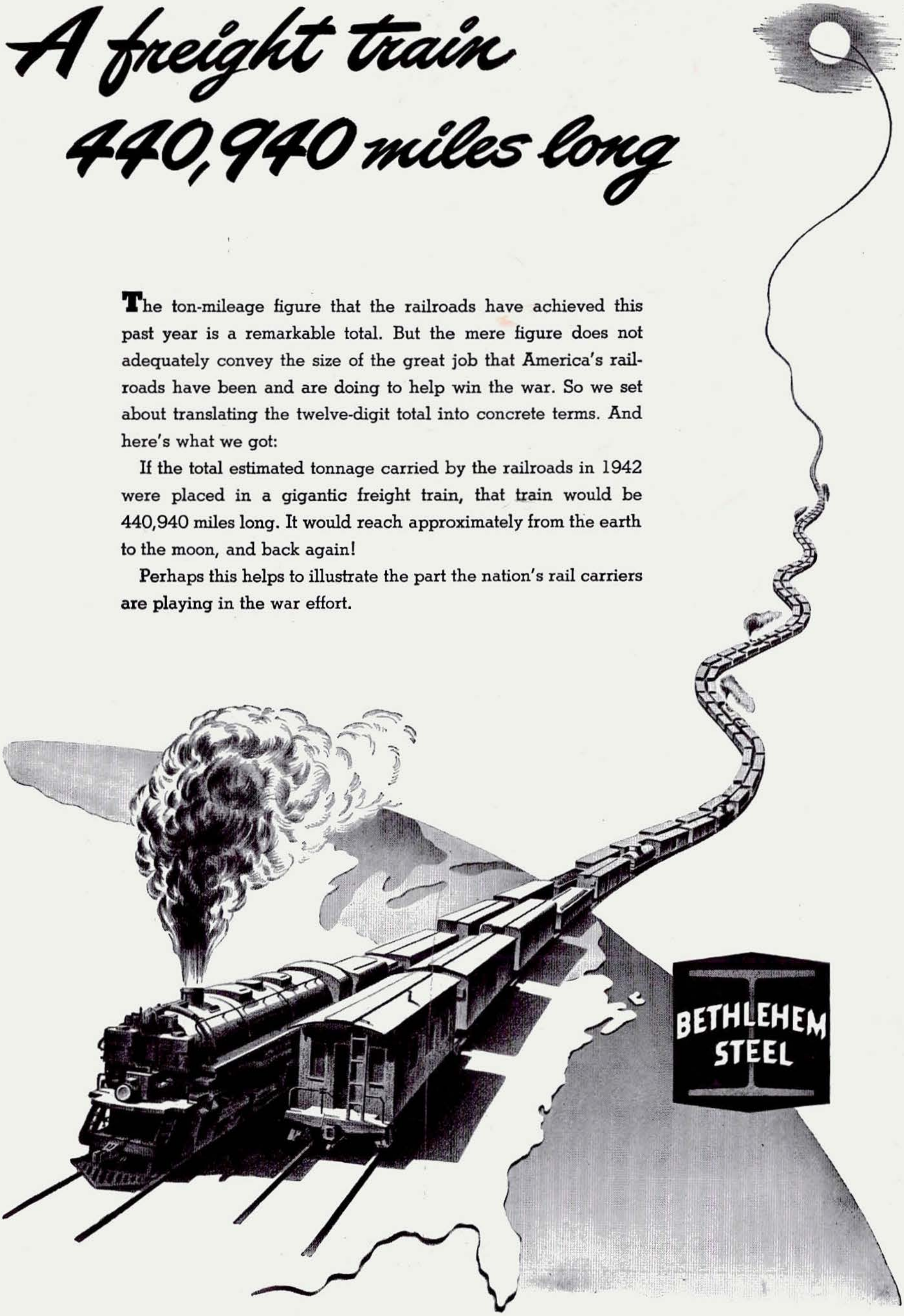
Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 114, No. 9.

A freight train 440,940 miles long

The ton-mileage figure that the railroads have achieved this past year is a remarkable total. But the mere figure does not adequately convey the size of the great job that America's railroads have been and are doing to help win the war. So we set about translating the twelve-digit total into concrete terms. And here's what we got:

If the total estimated tonnage carried by the railroads in 1942 were placed in a gigantic freight train, that train would be 440,940 miles long. It would reach approximately from the earth to the moon, and back again!

Perhaps this helps to illustrate the part the nation's rail carriers are playing in the war effort.

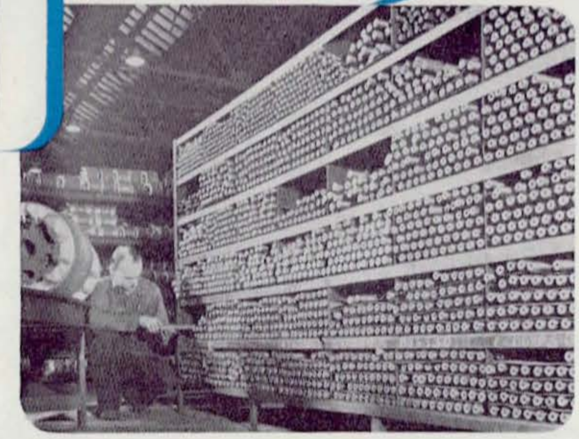


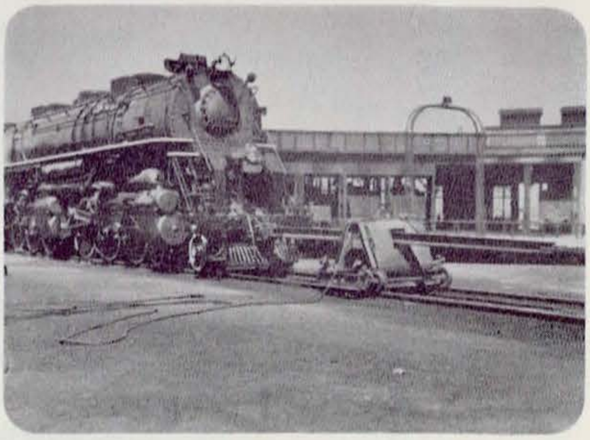
BETHLEHEM STEEL

HERE'S HELP FOR ALL

1

RENEWAL PARTS READY to speed replacement in electric equipment





17 well stocked warehouses

Keep an adequate supply of Westinghouse replacement parts on hand to meet emergencies.

Westinghouse has established 17 warehouses where you can obtain renewal parts quickly. These supply depots are conveniently located in or near every major railroad center and are adequately stocked with the frequently used replacement parts you need to keep your electrical equipment operating.

To speed delivery, order from our local office.

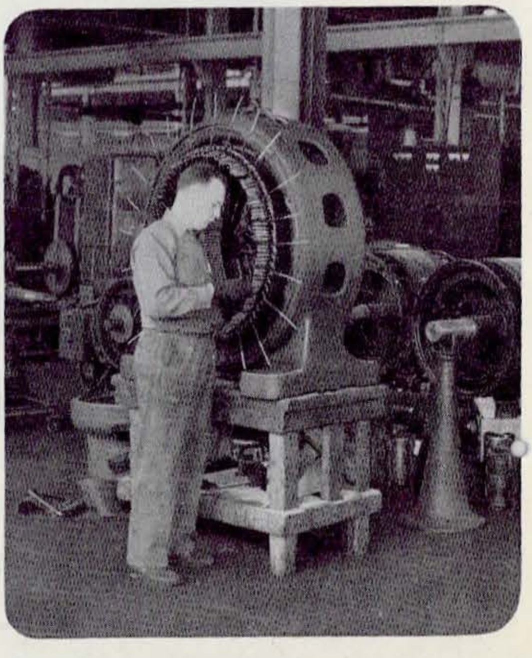
2

34 SHOPS READY to handle your electric repairs

Near main railroad centers

Westinghouse has established 34 district manufacturing and repair plants. These plants are equipped to help you with the larger, more specialized electric repair jobs such as rewinding motors, generators and transformers; or replacing and rebuilding worn parts including bearings, commutators, etc.

4000 trained employes are now serving Westinghouse customers from these district plants alone. To save time on repair service, call our local office.

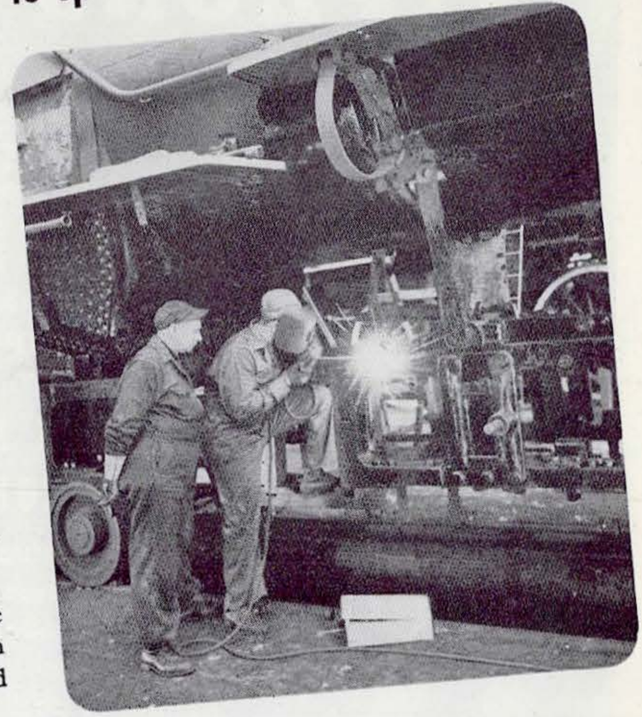


4 MAINTENANCE JOBS

3 WELDING EQUIPMENT READY to speed track and shop maintenance

There's a Westinghouse welder for every job ... in all types of railroad welding service ...

Maintenance of Way, Shop, Roundhouse, Car Building, General Repairs and Construction.



Westinghouse welders include portable or stationary types for fast a-c or d-c work; portable engine driven welders; equipment for semiautomatic process welding and equipment for use with the Unionmelt process. In addition Westinghouse supplies a complete line of electrodes and welding accessories.

Welding is typical of the many Westinghouse products that will help railroads accomplish their wartime responsibility of moving men and material—quickly and safely.

4 Valuable information from Westinghouse Experience

TO HELP YOU KEEP YOUR ELECTRICAL EQUIPMENT OPERATING

"Maintenance Hints" is a pocket-size book that will give your maintenance men valuable suggestions on care of electrical equipment and how to keep it on the job. For special up-to-the-minute time-saving tips and maintenance suggestions you will want "Maintenance News"—a periodical. To be sure each of your maintenance men gets these Westinghouse helps fill in the coupon and mail today.

J-95078

Westinghouse
MAINTENANCE NEWS
MAINTENANCE HINTS
VOLUME 2

JUST TEAR THIS OFF FILL IN AND MAIL

Westinghouse Electric & Mfg. Co.,
Dept. 7-N, E. Pittsburgh, Pa.

Please send Maintenance Hints, Vol. I and II., and Maintenance News to:

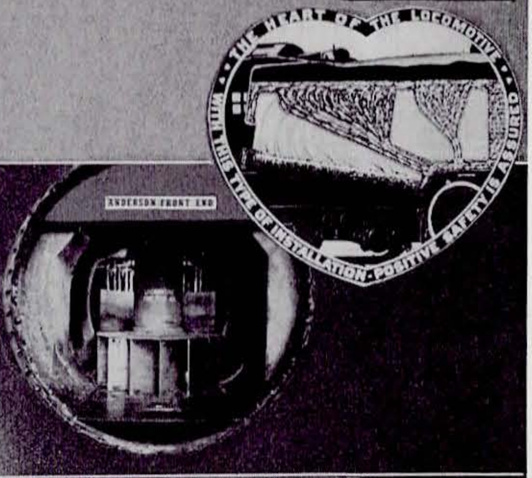
Name__________
Company__________
Address__________
City__________ State__________
Requested by__________ Title__________

If more than one of your maintenance men should have this book, write their names on your letterhead. We'll be glad to send them copies.

Westinghouse

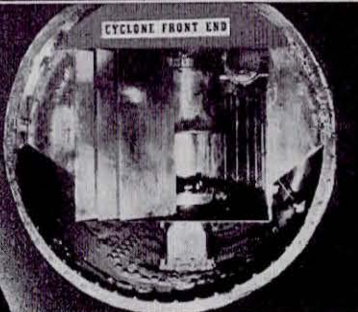
Time saver for American Railroads

IN PACE with *Progress*
In Step with UNCLE SAM


THE HEART OF THE LOCOMOTIVE • WITH THIS TYPE OF INSTALLATION POSITIVE SAFETY IS ASSURED
ANDERSON FRONT END

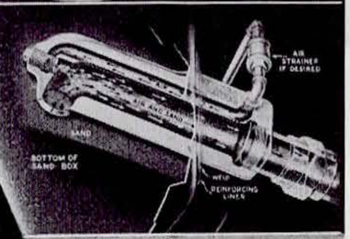
NICHOLSON THERMIC
SYPHONS

SYPHONS produce more boiler capacity with ***less weight, less steel, less labor and less cost,*** and for equivalent results assure greater economy in service and maintenance than larger boilers without SYPHONS, ***plus safety from boiler explosion.***


CYCLONE FRONT END

ANDERSON AND CYCLONE FRONT ENDS

For perfect drafting of locomotives. No fire hazard. They prevent the emission of live sparks from the stack, without the use of netting or perforated plate. Eliminate steam failures caused by stopped up netting. Reduce front end inspection and maintenance costs.


AIR STRAINER IF DESIRED
AIR
AIR AND SAND
SAND
BOTTOM OF SAND BOX
WELD
REINFORCING LINER

SYPHON SANDERS

No traps. No pockets and leaking joints to cause moisture troubles. No repair parts required. May be operated with any style of cab valve. Easily installed in the roundhouse.

Locomotive Firebox Company

NEW YORK CHICAGO **MONTREAL**

IT'S A PLEASURE TO PLEASE THEM

The Deluxe Limited had been running heavy for eight fast hours. I had been riding it—and also walking.

I thought it would be fun to see Conductor Frank Olrich work his train. So I'd walked, behind him, from Buffalo to New York City.

Olrich, collecting tickets and dispensing good cheer, was on his feet and going strong at the finish.

My conductor friend, with eight service stripes on his sleeve, looked, talked, and acted like Joseph Schildkraut, the distinguished Broadway-movie star. Olrich overtook trouble and fattened on it.

An epileptic case was laid prone in a woman's dressing room while a doctor, hastily summoned by Olrich, effected a recovery—without stopping the train.

A fighting-mad gentleman complained that his baggage had not been put on by the Albany Red Cap—who, it appeared, had not been told on what train to put it. "Just tell the New York Station Master," said Olrich soothingly. "He'll wire to Albany, and you'll get your bags." Then Olrich smilingly added: "You won't hit that Red Cap, now, will you?" Smiles on the face of the passenger.

And so on, for eight hours and about 900 male and female American citizens, not counting children and babies. Kicks and quirks and assorted humanity. Quips and jests—with the right persons.

While Olrich was preparing to make out his train report, the master salesman in conductor's uniform confessed:

"After I had come up from freight braking, a wonderful old timer named Charley Ludington saw me working my first passenger train.

"I was scared, and stiff. Not sure of myself. Charley took me to one side and said, 'Frank, everyone has his own troubles. Most often the passengers bring theirs along. Just give each one a smile. He or she will be grateful. Ninety-five per cent of the people are all right, when you know them.'

"I took Charley's tip. Found it worked fine. Got to like talking to people. Got to really loving my job. Sometimes when I'm running deadhead out of my home town, Syracuse, into Buffalo, I put on my uniform and help brother conductors work a tough train.

"We all know that if folks didn't travel on trains we wouldn't have jobs. So, the happier we can make passengers, the better for us. But, beyond and above that, a conductor gets into the habit of studying people. Learning how to please each one—with straight talk or comedy.

"If the time ever comes when it's no longer a pleasure to please them, I'll put my punch in my pocket and get off the road."

—*The Trackwalker*

Alco GE

AMERICAN LOCOMOTIVE • GENERAL ELECTRIC

113-9-9500

A long step toward Axis defeat—

HITLER NEGLECTS NAZI RAILROADS

Military strategists point to Germany's crumbling railroads as a double danger to Hitler—threatening military operations and adding to shortages at home. When the fuehrer placed too much faith in other methods of transportation, he took a long step toward crushing defeat.

Quite a contrast with our own nation! American railroad men and shippers have already achieved the greatest transportation victory of all time. Millions of tons of freight have moved faster than ever believed possible, have directly contributed to our far-flung offensives.

General American Transportation has been a "teammate" of the railroads for over forty years. The GATX Fleet has come through "under fire"—testifying to the dependability of cars with the GATX mark.

GENERAL AMERICAN TRANSPORTATION

CORPORATION

Chicago

GATX
GENERAL
AMERICAN

A SYMBOL OF INTEGRITY FOR OVER 40 YEARS

IT'S A PLEASURE TO PLEASE THEM

The Deluxe Limited had been running heavy for eight fast hours. I had been riding it—and also walking.

I thought it would be fun to see Conductor Frank Olrich work his train. So I'd walked, behind him, from Buffalo to New York City.

Olrich, collecting tickets and dispensing good cheer, was on his feet and going strong at the finish.

My conductor friend, with eight service stripes on his sleeve, looked, talked, and acted like Joseph Schildkraut, the distinguished Broadway-movie star. Olrich overtook trouble and fattened on it.

An epileptic case was laid prone in a woman's dressing room while a doctor, hastily summoned by Olrich, effected a recovery—without stopping the train.

A fighting-mad gentleman complained that his baggage had not been put on by the Albany Red Cap—who, it appeared, had not been told on what train to put it. "Just tell the New York Station Master," said Olrich soothingly. "He'll wire to Albany, and you'll get your bags." Then Olrich smilingly added: "You won't hit that Red Cap, now, will you?" Smiles on the face of the passenger.

And so on, for eight hours and about 900 male and female American citizens, not counting children and babies. Kicks and quirks and assorted humanity. Quips and jests—with the right persons.

While Olrich was preparing to make out his train report, the master salesman in conductor's uniform confessed:

"After I had come up from freight braking, a wonderful old timer named Charley Ludington saw me working my first passenger train.

"I was scared, and stiff. Not sure of myself. Charley took me to one side and said, 'Frank, everyone has his own troubles. Most often the passengers bring theirs along. Just give each one a smile. He or she will be grateful. Ninety-five per cent of the people are all right, when you know them.'

"I took Charley's tip. Found it worked fine. Got to like talking to people. Got to really loving my job. Sometimes when I'm running deadhead out of my home town, Syracuse, into Buffalo, I put on my uniform and help brother conductors work a tough train.

"We all know that if folks didn't travel on trains we wouldn't have jobs. So, the happier we can make passengers, the better for us. But, beyond and above that, a conductor gets into the habit of studying people. Learning how to please each one—with straight talk or comedy.

"If the time ever comes when it's no longer a pleasure to please them, I'll put my punch in my pocket and get off the road."

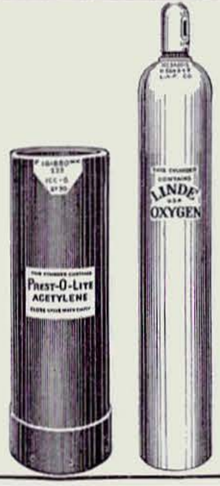
—*The Trackwalker*

Alco GE

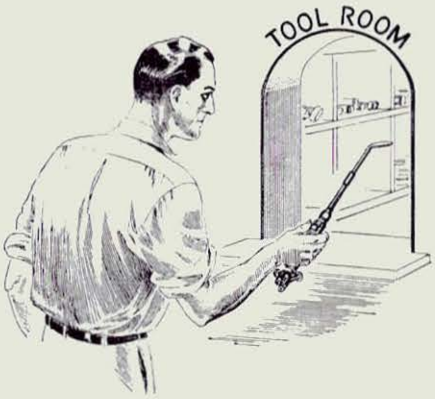
AMERICAN LOCOMOTIVE • GENERAL ELECTRIC

113-9-9500

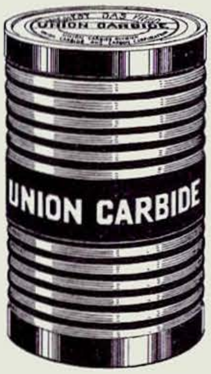
HOW TO DO



Cylinder Oxygen and Acetylene—Only as much oxygen and acetylene can be supplied as there are cylinders for transportation. Make every effort to reduce reserve stocks and return empties promptly. Protect cylinders from oil and grease and from physical damage. Prevent waste of welding and cutting gases by eliminating leaks in hose and connections and turning off equipment when not in use.



Welding and Cutting Blowpipes — Welding and cutting blowpipes are precision-built of scarce materials and are increasingly hard to replace. Don't use blowpipes as hammers or for any other purpose than that for which they are intended . . . protect metal-to-metal seats from damage . . . clean welding heads and cutting nozzles regularly . . . turn in blowpipes promptly when they are in need of repair.

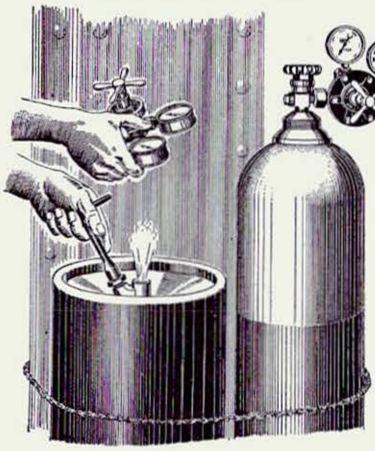


Carbide—Don't open carbide drums until ready to use the carbide so as to avoid gas loss due to slaking. Carbide drums should be conserved. Open drums carefully so as not to damage them . . . do not punch holes in them. Save all empty drums for return and re-use, first replacing the screw cover and gasket. If not already so marked, drums to be returned to the manufacturer for re-use should be marked with a painted "X" on the bottom.

SINCE 1912—THE COMPLETE OXY-ACETYLENE

The word "Oxweld" is a registered trade-mark.

MORE . . . with Less



Regulators—Fasten cylinders securely in an upright position when they are in use to prevent breakage of regulators due to falling. Blow dirt out of cylinder valves before attaching regulators. Open cylinder valves slowly to avoid a sudden rush of gas into regulators, and release all pressure from regulators when not in use. Replace dust caps and store regulators carefully when not being used.

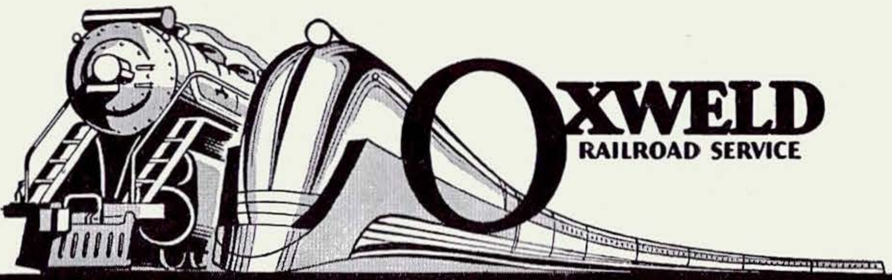
Welding Rod and Hose—Use up stub ends of welding rods by tack-welding them to the ends of new rods . . . don't over-reinforce welds . . . use steel or cast iron rod in place of bronze wherever possible . . . don't spill flux. Protect oxygen and acetylene hose from oil and grease. Don't kink, drag, or otherwise abuse hose. Use short lengths. Repair leaky hose with Oxweld hose splices.

THE OXWELD RAILROAD SERVICE COMPANY

Unit of Union Carbide and Carbon Corporation

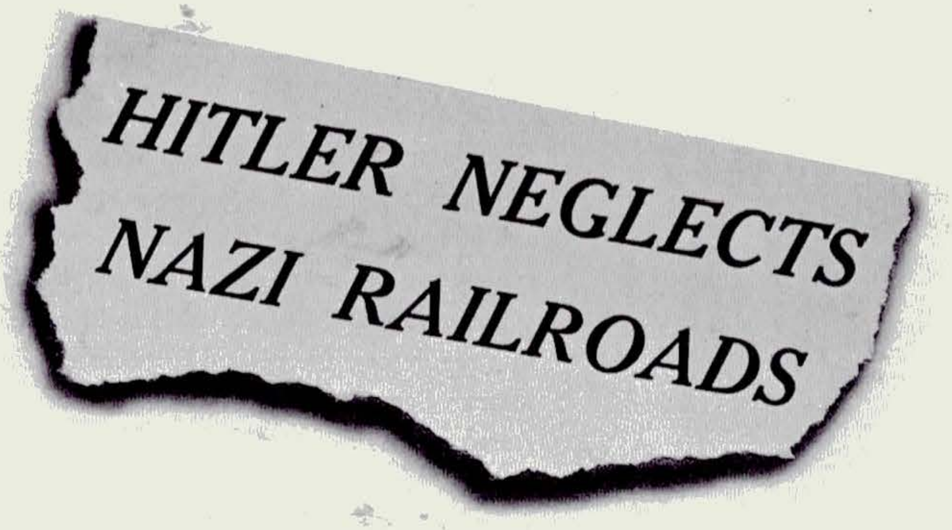
UCC

Carbide and Carbon Building Chicago and New York



SERVICE FOR AMERICAN RAILROADS

A long step toward Axis defeat—



HITLER NEGLECTS NAZI RAILROADS

Military strategists point to Germany's crumbling railroads as a double danger to Hitler—threatening military operations and adding to shortages at home. When the fuehrer placed too much faith in other methods of transportation, he took a long step toward crushing defeat.

Quite a contrast with our own nation! American railroad men and shippers have already achieved the greatest transportation victory of all time. Millions of tons of freight have moved faster than ever believed possible, have directly contributed to our far-flung offensives.

General American Transportation has been a "teammate" of the railroads for over forty years. The GATX Fleet has come through "under fire"—testifying to the dependability of cars with the GATX mark.

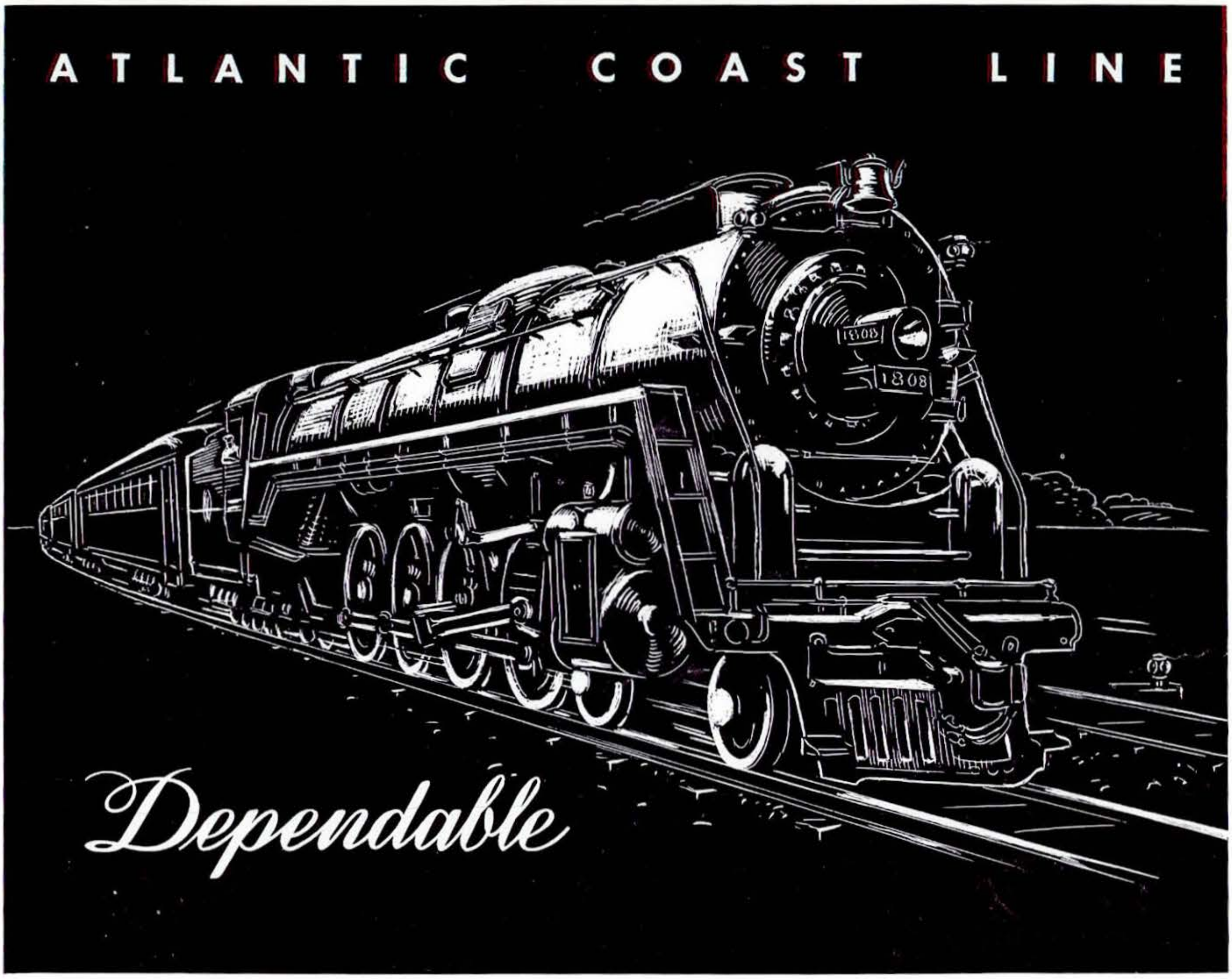
GENERAL AMERICAN TRANSPORTATION

CORPORATION

Chicago

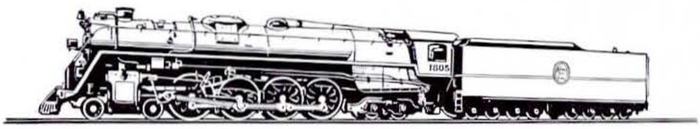
GATX
GENERAL
AMERICAN

A SYMBOL OF INTEGRITY FOR OVER 40 YEARS



STANDARD FORGINGS AND CASTINGS

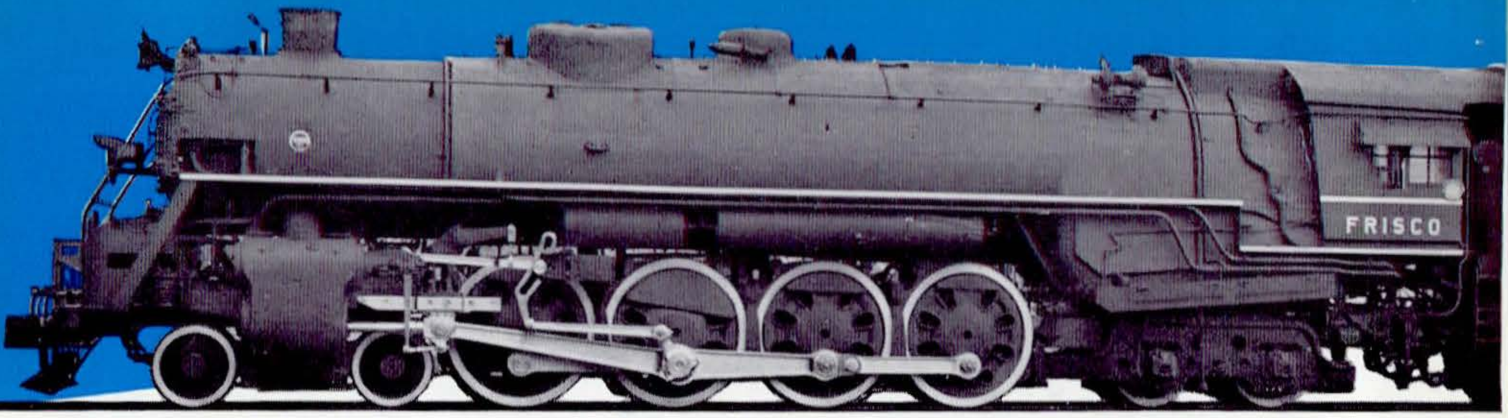
Motive power is dependable because of the dependability of all its parts. And when this power must haul long trains, heavy loads, and adhere to fast schedules —— the connecting rods, piston rods, axles, driving wheel centers, tires, springs, truck and tender wheels, plus many other steel products supplied by Standard can be depended upon!



THE BALDWIN GROUP

STANDARD
STEEL WORKS

DIVISION OF THE BALDWIN LOCOMOTIVE WORKS
PHILADELPHIA



"Frisco Faster Freight"

Serving both the Southeast and Southwest, the lines of the St. Louis-San Francisco Railway stretch from Birmingham, Alabama, to western Texas; from Kansas City and St. Louis to Pensacola on the Gulf. "Frisco Faster Freight" is the railway's symbol of service to this great link in transcontinental and export shipping. Fifteen Baldwin 4-8-4 type locomotives, built in 1942, have been placed in dual freight and passenger service, helping the Frisco to haul the men and materials needed for victory.

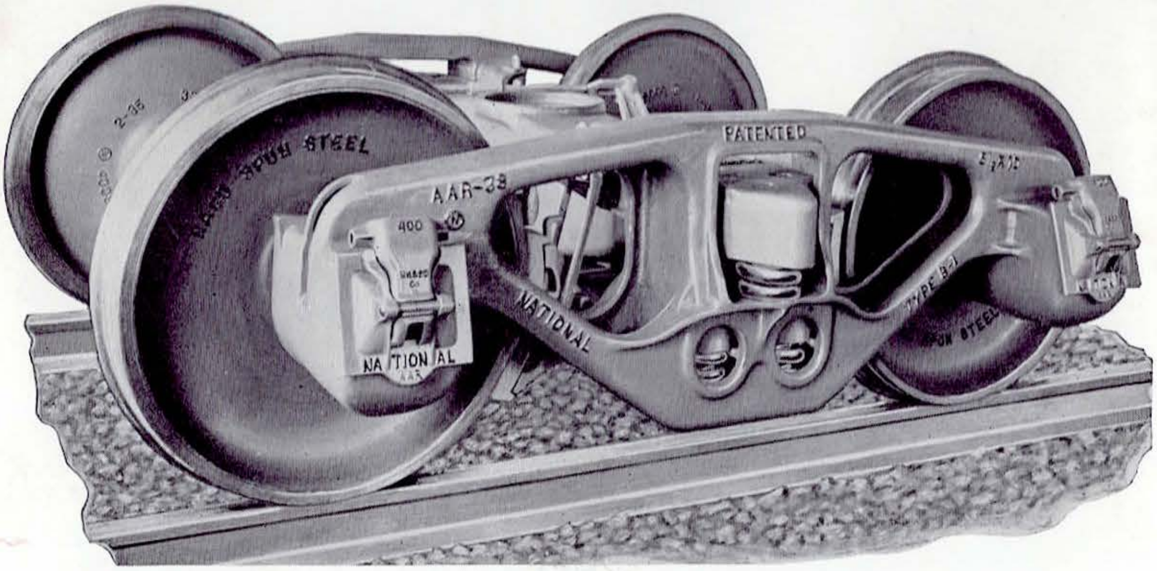
These modern locomotives are operating on the Eastern Division from St. Louis, to Monett, Missouri, and over the Southwestern Division to Tulsa, Oklahoma. In this service they have joined heavy Mountain type locomotives, thus permitting the release of a number of Mikados and medium weight Mountain type locomotives for service on other divisions.

Baldwin locomotives, as well as Baldwin military tanks, guns and other war materiel, are aiding America in the all-important task of winning the war.

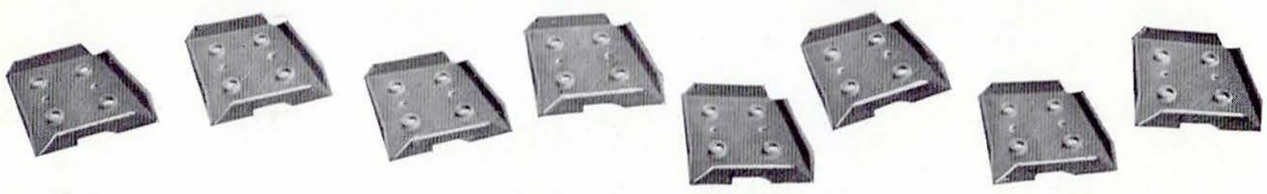
Baldwin serves the Nation which the Railroads helped to Build

THE
BALDWIN
LOCOMOTIVE WORKS
Philadelphia

NATIONAL B-1 TRUCKS
with
DUAL CONTROL



Save Weight, Time and Expense



A. A. R. Standard Springs used in National B-1 Trucks are held firmly in position in the side frame, and the Eight spring retaining plates (illustrated above) used in other types of trucks are eliminated.

Two Spring Planks per car are also eliminated—At least 500 lbs. of vital steel per car are saved by elimination of the items shown.

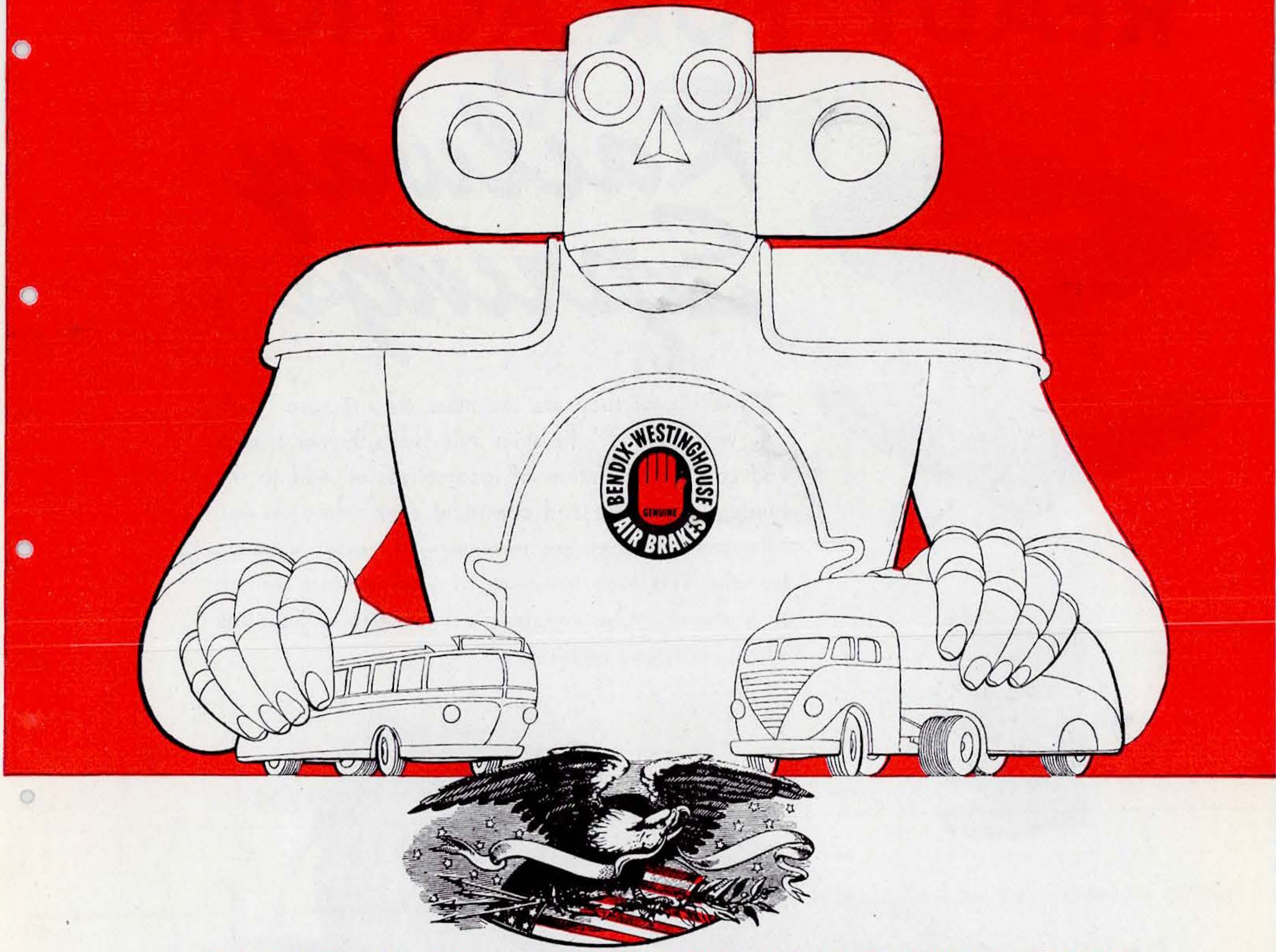
Built-in Friction Controls make the usual snubbers unnecessary.

They meet all A.A.R. requirements.

NATIONAL MALLEABLE AND STEEL CASTINGS CO.
General Offices: **CLEVELAND, OHIO**
Sales Offices: **New York, Philadelphia, Chicago, St. Louis, San Francisco**
Works: **Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.**

Canadian Representatives: RAILWAY AND POWER ENGINEERING CORPORATION, LTD., *Toronto and Montreal*

AMERICAN INGENUITY



. . . MAKING BIG ONES OUT OF LITTLE ONES

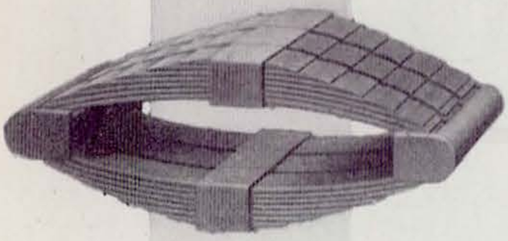
Bendix-Westinghouse is proud to continue to serve an industry whose multiplying problems merely spur incentive ★ So it is, when the Transportation Industry found itself unable to procure the heavy duty chassis formerly employed, an old order was reversed. Thus, today we find them "Making Big Ones out of Little Ones." Elongated chassis, special gear ratios take care of carrying capacity and power and genuine Bendix-Westinghouse Air Brakes traditionally answer the control problem ★ Not content with this, inspired operators everywhere have taken advantage of the modernizing potentialities in genuine Bendix-Westinghouse Air Brakes in rehabilitating units which might otherwise have slipped quietly from service ★ As long as American Ingenuity, genuine Bendix-Westinghouse Air Brakes and Air Control Devices can team as they have in these days of tribulation, you have every right to expect the great things transportation has in store for you when the current strife has been concluded ★ Your authorized Bendix-Westinghouse Distributor is the headquarters for every control problem . . . Consult him regularly.

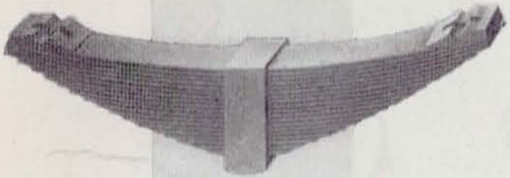
BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE CO.
ELYRIA, OHIO

BENDIX-WESTINGHOUSE
AIR BRAKES

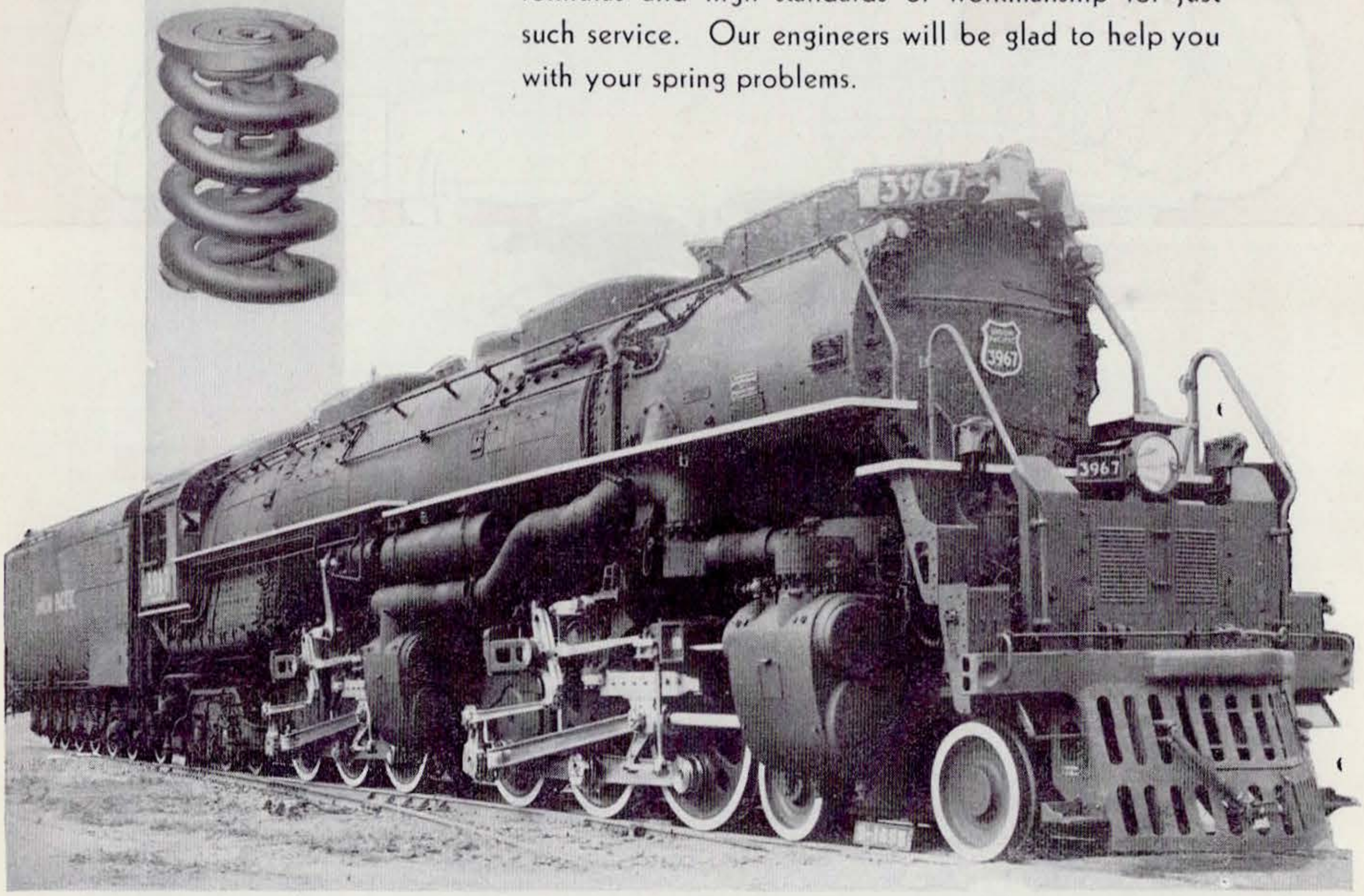
AN ORGANIZATION WHOSE UNDIVIDED EFFORT AND COMPLETE RESOURCES
ARE DEVOTED TO YOUR CONVENIENCE AND SAFETY

READY FOR ACTION ON *Railway Springs*

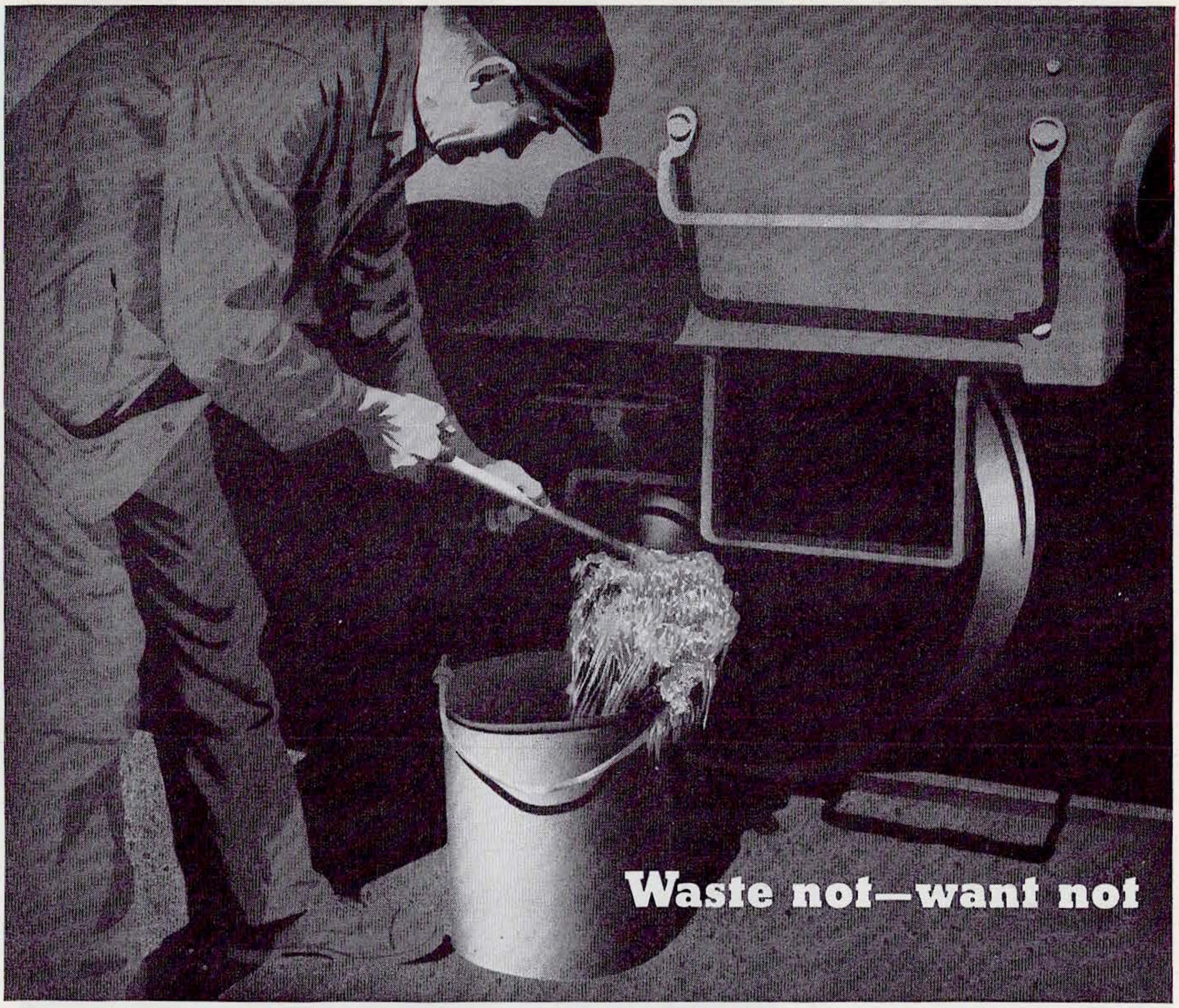




THE bigger they are the more they require "Railway Springs." Heavier axle loads, higher speeds and constant operation of locomotives all add to the burden of reliable and consistent easy riding springs. "Railway" Springs are manufactured under exacting formulas and high standards of workmanship for just such service. Our engineers will be glad to help you with your spring problems.



AMERICAN LOCOMOTIVE COMPANY
Railway Steel Spring Division
30 CHURCH STREET, NEW YORK, N. Y.



Information supplied by "Railway Age"

Necessity for conserving materials, and reducing expenses on railroads has led to the installation of effective means of reclaiming journal box waste and oil.

In one system old waste collected from journal boxes is put in centrifugal extractors, which remove about 98% of the oil. The waste is then dried and cleaned in a revolving screen, which separates the lint from the long fibers.

The latter are removed and inspected for quality. The addition of new fibers in the proportion of about 1 to 8, and the further addition of the proper amount of oil produces a journal packing that meets specifications.

The oil is filtered, and used over. Due to the high metallic content of the sludge, it is easily made into a wear resisting paint for locomotives, switches, and signals.

CLIMAX FURNISHES AUTHORITATIVE ENGINEERING DATA ON MOLYBDENUM APPLICATIONS.
MOLYBDIC OXIDE BRIQUETTES • FERROMOLYBDENUM • "CALCIUM MOLYBDATE"

MOLY

Climax Mo-lyb-den-um Company
500 Fifth Avenue • New York City

ALKALINE BATTERY EXTRAS

Light-weight . . . reduces total car weight . . . saves power . . . makes batteries easy to handle.

Durable all steel cell construction . . . withstands the overcharging and overdischarging inherent in the service . . . can't be damaged by freezing in winter . . . dissipates heat rapidly in summer.

Rapid Charging at any state of charge . . . affords high road capacity . . . minimizes need for yard charging.

Flexible . . . cells easily regrouped into batteries of higher or lower capacity; higher or lower voltage.

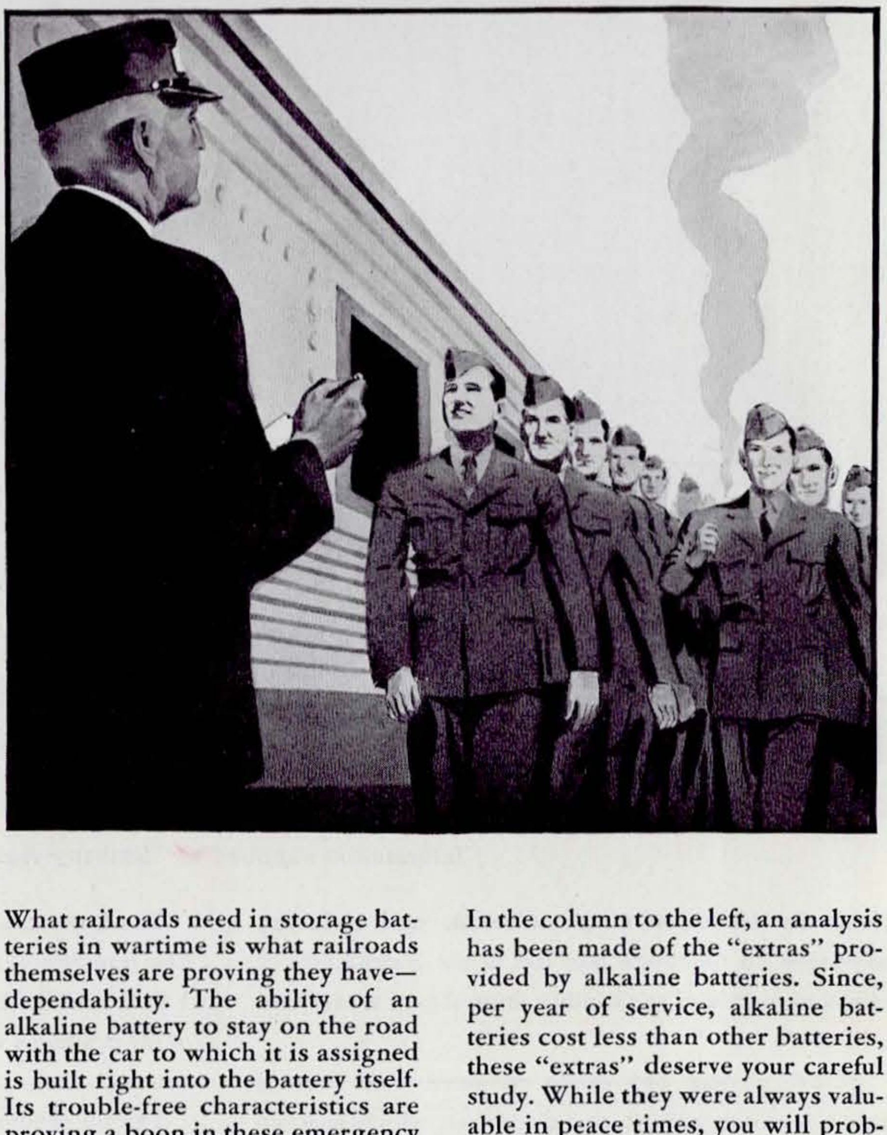
High Rates . . . for extra heavy load demands, full capacity at high rates and good voltage is assured by G-Type batteries.

Simple Maintenance . . . no sulphation, jar breakage, terminal corrosion, electrolyte stratification or other usual battery troubles.

Predictable . . . capacity tests at normal shopping periods permit reinstallation in cars with maximum assurance that capacity will continue adequate until next shopping.

Edison Storage Battery Division
Thomas A. Edison, Inc.
WEST ORANGE, N. J.

POWER
TO CARRY ON

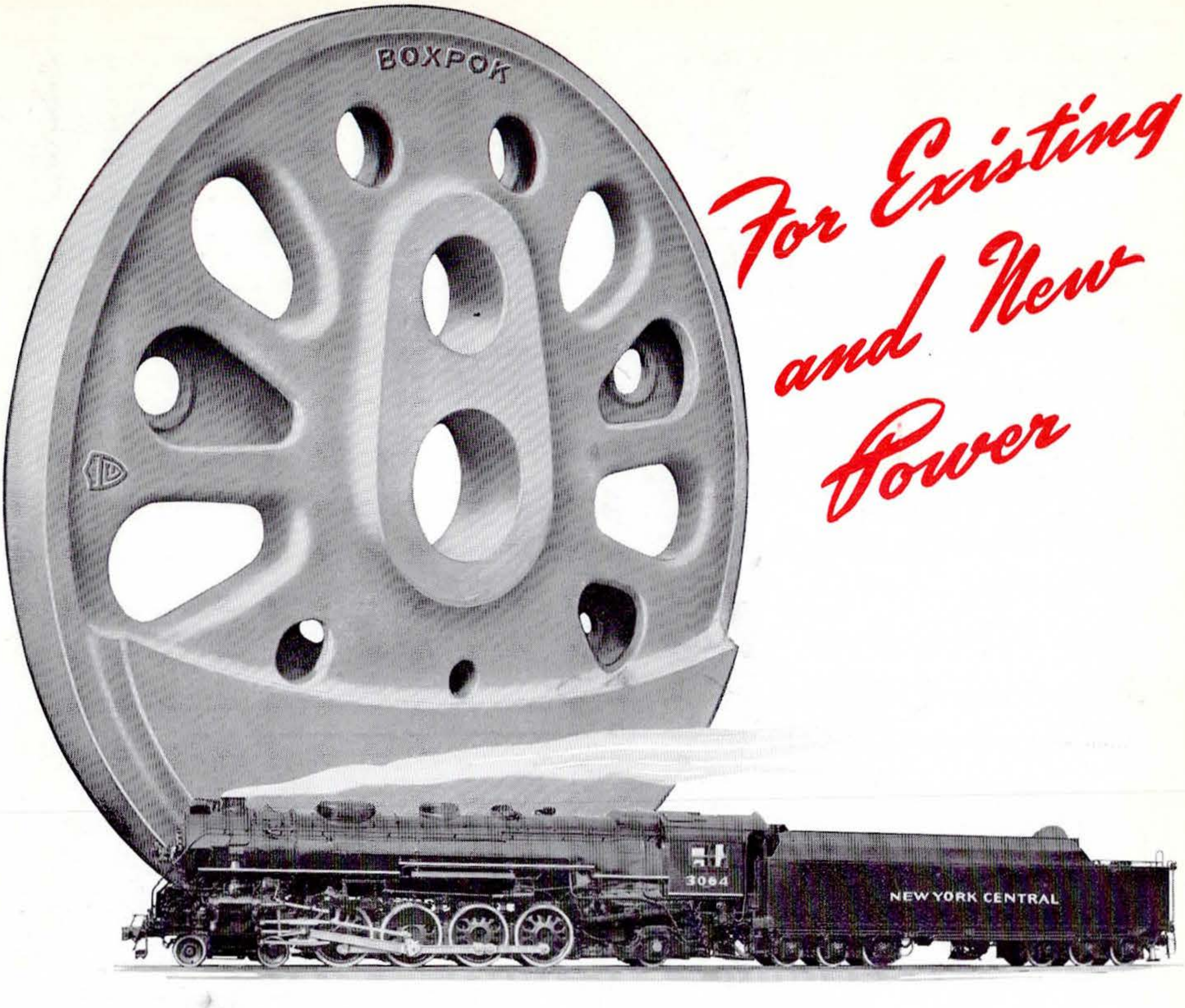


What railroads need in storage batteries in wartime is what railroads themselves are proving they have—dependability. The ability of an alkaline battery to stay on the road with the car to which it is assigned is built right into the battery itself. Its trouble-free characteristics are proving a boon in these emergency days when hundreds of extra troop trains are being added to peak regular passenger traffic.

In the column to the left, an analysis has been made of the "extras" provided by alkaline batteries. Since, per year of service, alkaline batteries cost less than other batteries, these "extras" deserve your careful study. While they were always valuable in peace times, you will probably agree that they will be an additional help in the job of carrying on during war.

RAILROADS NEED THE DEPENDABILITY OF

Edison
Alkaline BATTERIES



For Existing and New Power

BOXPOK

DRIVING WHEEL CENTERS

Today's heavy tonnage trains, high operating speeds, and greater density of traffic have imposed added burdens upon locomotives, tracks, and road beds.

To meet these conditions, stronger, better designed and balanced Driving Wheels are a necessity as the PROBLEM OF MAINTENANCE has become a factor of the greatest importance.

BOXPOK Driving Wheels are the answer to these problems. They prevent out-of-round wheels and flat spots — wheels stay round — tire mileage is increased. Lightness in weight and more effective counterbalancing permit high speeds with less wear and tear on track and locomotive.

GENERAL STEEL CASTINGS

EDDYSTONE, PA. GRANITE CITY, ILL.

It Takes Weeks to Train Him

A Second to lose him

. . . make Sure he wears AO Goggles

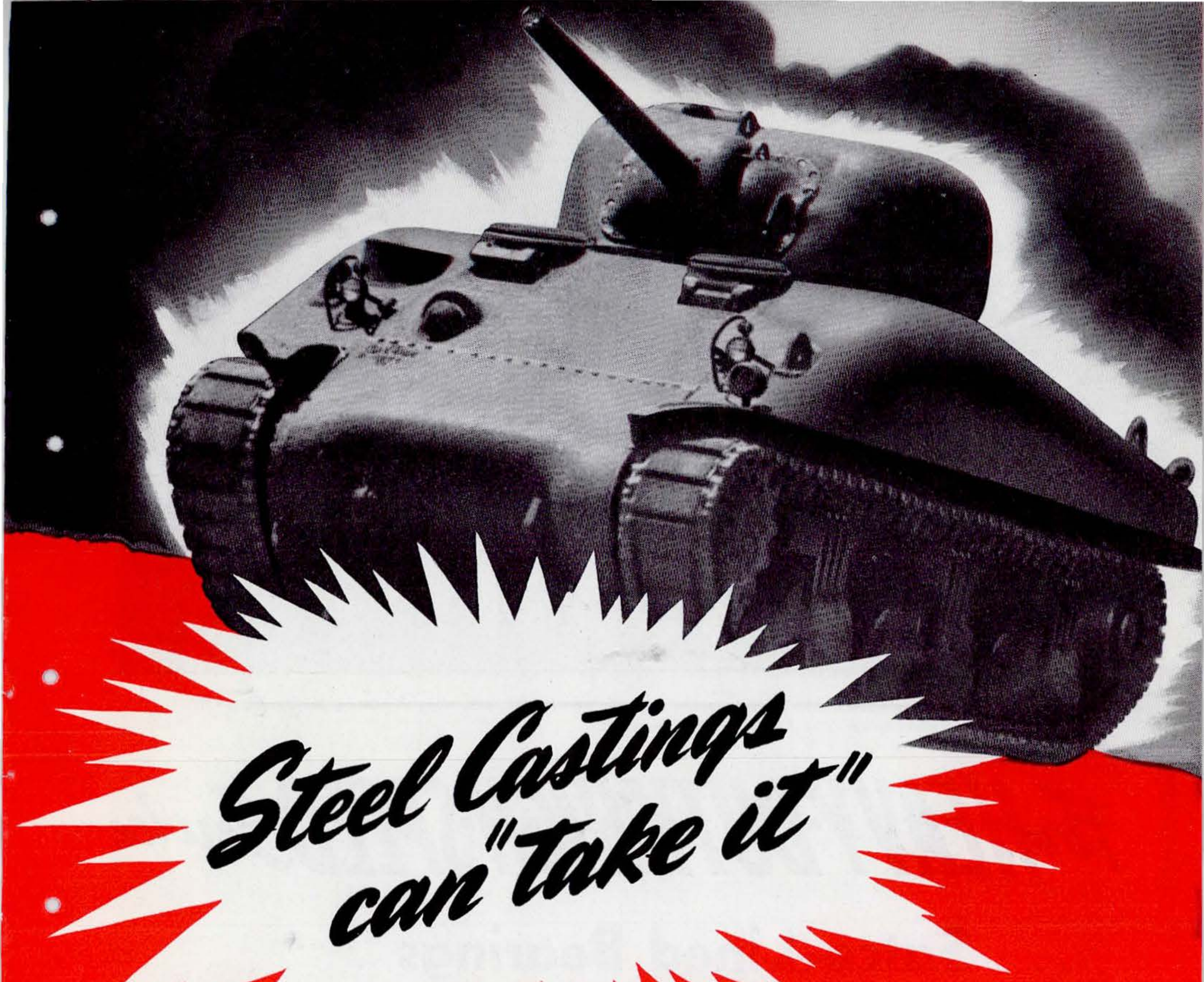
All of the time and effort required to train a worker for an important war production job are lost in the split-second it takes for an eye injury to occur.

To enable all of your workers to fill every possible man-hour, American Optical Company offers you a complete line of scientifically designed goggles that protect against every type of eye hazard in your plant.

To provide resistance against impact, for example, AO Goggles equipped with specially hardened Super Armorplate Lenses are recommended — either clear or Calobar, without power or, in spectacle type goggles, ground to individual prescription.

For the latest, most effective methods of eye protection, get in touch with your nearest AO Branch Office today.

American Optical
COMPANY
SOUTHBRIDGE, MASSACHUSETTS


Steel Castings can "Take it"

The new M-4 medium sized tank—streamlined and welded—is another example of the use of steel castings that can "stand the gaff". Numerous parts for this tank are furnished by the American Steel Foundries.

"The Foundries" produces the largest volume of cast armor for various types of tanks and armored vehicles. Its success in making steel castings for armament is due largely to long experience in making steel castings for the exacting service in railway and industrial fields.

Our research work on railway devices and castings has not been curtailed by our war efforts and production in this field is being maintained.

AMERICAN STEEL FOUNDRIES

Chicago

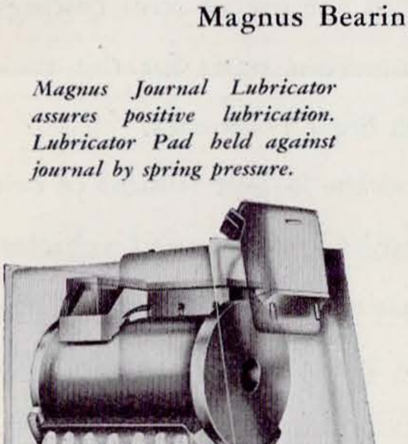
The "Daylight", Southern Pacific's famous streamline train, runs for 130 miles along the shore of the Pacific, on its dawn-to-dusk flight between Los Angeles and San Francisco.

For HEAVY-DUTY HIGH-SPEED Service

Satco-Lined Bearings

Freight and Passenger Locomotives and Tenders, and passenger cars—especially equipment used in high-speed service—are now benefiting from the use of Magnus Bearings lined with Satco Metal.

Magnus Journal Lubricator assures positive lubrication. Lubricator Pad held against journal by spring pressure.



Conserve Critical Metals. — Satco Metal is used in place of lead and tin-base babbit, block tin and other linings using critical metals. Prompt deliveries are assured.

Cut Maintenance and Replacement Costs. —*Satco* Metal greatly increases bearing mileage, thus reducing both labor and material replacement costs.

Magnus Satco-Lined Oil-Tube Journal Bearing.

MAGNUS METAL CORPORATION
CHICAGO NEW YORK

THE WROUGHT STEEL WHEEL

II THE BEGINNING

BACK in the Gay Nineties when loads were light and speeds were not so fast, all freight cars ran on cast iron wheels. The better passenger cars rode on steel tired wheels.

AT the turn of the century a new one-piece wrought steel wheel was offered to the Railroads. It was made on a mill which had been developed in Germany to roll soft steel centers for steel tired wheels. The American mills rolled a one-piece wheel which had the advantages of strength, simplicity, and ease of maintenance. The acceptance of this wheel by the railroads has been so complete that in this country use of steel-tired wheels has been practically abandoned except for the driving wheels of steam locomotives.

IN 1918 Edgewater Steel Company began the manufacture of wrought steel wheels, using a newly designed mill with power enough to form the rim and flange by a true rolling action without reheating being necessary. In the wheels produced on this mill the final mechanical work on the rim is done at a temperature close enough to the critical to ensure the uniform fine grain structure that is essential to long service life.

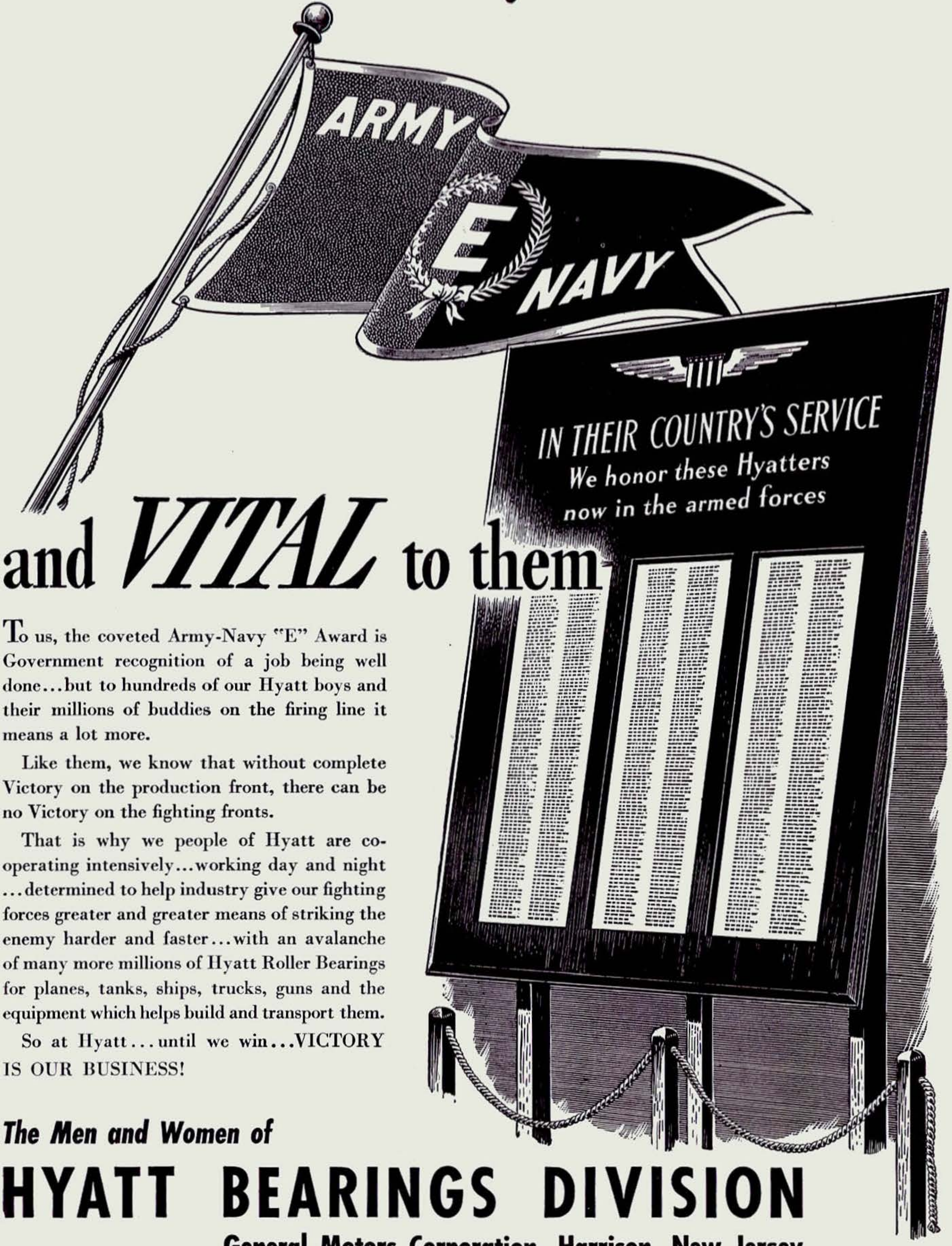
Second of a series of six.

EDGEWATER STEEL COMPANY, PITTSBURGH, PA.

Sales Offices:

ATLANTA BALTIMORE BOSTON CHICAGO CLEVELAND KANSAS CITY
LOUISVILLE NEW YORK PHILADELPHIA ST. LOUIS ST. PAUL
SAN FRANCISCO SEATTLE TULSA WASHINGTON

VALUED by us...


ARMY
E
NAVY
IN THEIR COUNTRY'S SERVICE
We honor these Hyatters now in the armed forces

and *VITAL* to them

To us, the coveted Army-Navy "E" Award is Government recognition of a job being well done...but to hundreds of our Hyatt boys and their millions of buddies on the firing line it means a lot more.

Like them, we know that without complete Victory on the production front, there can be no Victory on the fighting fronts.

That is why we people of Hyatt are co-operating intensively...working day and night ...determined to help industry give our fighting forces greater and greater means of striking the enemy harder and faster...with an avalanche of many more millions of Hyatt Roller Bearings for planes, tanks, ships, trucks, guns and the equipment which helps build and transport them.

So at Hyatt...until we win...VICTORY IS OUR BUSINESS!

The Men and Women of

HYATT BEARINGS DIVISION

General Motors Corporation, Harrison, New Jersey

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette
and the Railway Age-Gazette. Name registered U. S. Patent Office.

Vol. 114 February 27, 1943 No. 9

PUBLISHED EACH SATURDAY BY THE SIMMONS-BOARDMAN PUBLISHING CORPORATION, 1309 NOBLE STREET, PHILADELPHIA, PA., WITH EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK, N. Y., AND 105 W. ADAMS STREET, CHICAGO, ILL.

WASHINGTON, D. C.: 1081 NATIONAL PRESS BUILDING. CLEVELAND: TERMINAL TOWER. SEATTLE: 1038 HENRY BUILDING. SAN FRANCISCO: 300 MONTGOMERY STREET, ROOMS 805-806. LOS ANGELES: 530 WEST 6th STREET.

SAMUEL O. DUNN, CHAIRMAN. HENRY LEE, PRESIDENT. ROY V. WRIGHT, VICE-PRESIDENT AND SECRETARY. F. H. THOMPSON, E. T. HOWSON, F. C. KOCH, R. E. THAYER, H. A. MORRISON, J. G. LYNE, VICE-PRESIDENTS. J. T. DeMOTT, TREASURER.

SAMUEL O. DUNN, EDITOR. ROY V. WRIGHT, MANAGING EDITOR. ELMER T. HOWSON, WESTERN EDITOR. JAMES G. LYNE, ASS'T TO EDITOR. C. B. PECK, ALFRED G. OEHLER. E. L. WOODWARD. J. H. DUNN. D. A. STEEL. R. A. DOSTER. H. C. WILCOX. NEAL D. HOWARD. CHARLES LAYNG. GEORGE E. BOYD. WALTER J. TAFT. M. H. DICK. JOHN S. VREELAND. ARTHUR J. McGINNIS. J. L. STOVER. C. B. TAVENNER. LIBRARIAN: EDITH C. STONE. EDITORIAL ASSISTANT: LOUISE MULLER.

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PAPERS (A. B. P.) AND AUDIT BUREAU OF CIRCULATIONS (A. B. C.).

SUBSCRIPTIONS, INCLUDING 52 REGULAR WEEKLY ISSUES, AND SPECIAL DAILY EDITIONS PUBLISHED FROM TIME TO TIME IN NEW YORK, OR IN PLACES OTHER THAN NEW YORK, PAYABLE IN ADVANCE AND POSTAGE FREE. UNITED STATES, U. S. POSSESSIONS AND CANADA: 1 YEAR, $6.00; 2 YEARS, $10.00; FOREIGN COUNTRIES, NOT INCLUDING DAILY EDITIONS: 1 YEAR, $8.00; 2 YEARS, $14.00. SINGLE COPIES, 25 CENTS EACH. H. E. McCANDLESS, CIRCULATION MANAGER, 30 CHURCH STREET, NEW YORK.

In This Issue

Page

Baldwin Builds 4-8-4 Locomotives for Service on Frisco *424*

An illustrated article describing the fifteen units, having a tractive force of 69,800 lb. and a total engine weight of 462,500 lb., acquired by the St. Louis-San Francisco, which have made it possible to release lighter power for other service.

What the A.A.R. Has Under Way in Engineering and Mechanical Research *430*

An outline of the 1943 program of the Association of American Railroads in this field—comprising 20 important investigations of benefit to the railways and their war effort—to be carried out under the direction of its own staff in collaboration with others.

Bessemer and Lake Erie Installs Centralized Traffic Control *435*

How this road expedited train movements with increased safety by the installation of C. T. C. on 88 miles of single and double track between Meadville Junction, Pa., and Filer, a distance of 42.9 miles.

EDITORIALS

Half-Slave, Half-Free 421
Heavy Work Programs Call for More Supervision 422
Track Changes with C. T. C. 422
Leadership and Suggestion Systems 423
Electrical Standards 423

GENERAL ARTICLES

Baldwin Builds 4-8-4 Locomotives for Service on Frisco 424
Wage Cases Moved Along Fast This Week 427
Report on Collision at Almonte, Ontario 429
What the A. A. R. Has Under Way in Engineering and Mechanical Research 430
"Troop Train" 434
Bessemer & Lake Erie Installs Centralized Traffic Control 435
WPB Bungling of Scrap Threatens Railroad Steel Supply 439

RAILROADS-IN-WAR NEWS **441**

GENERAL NEWS **445**

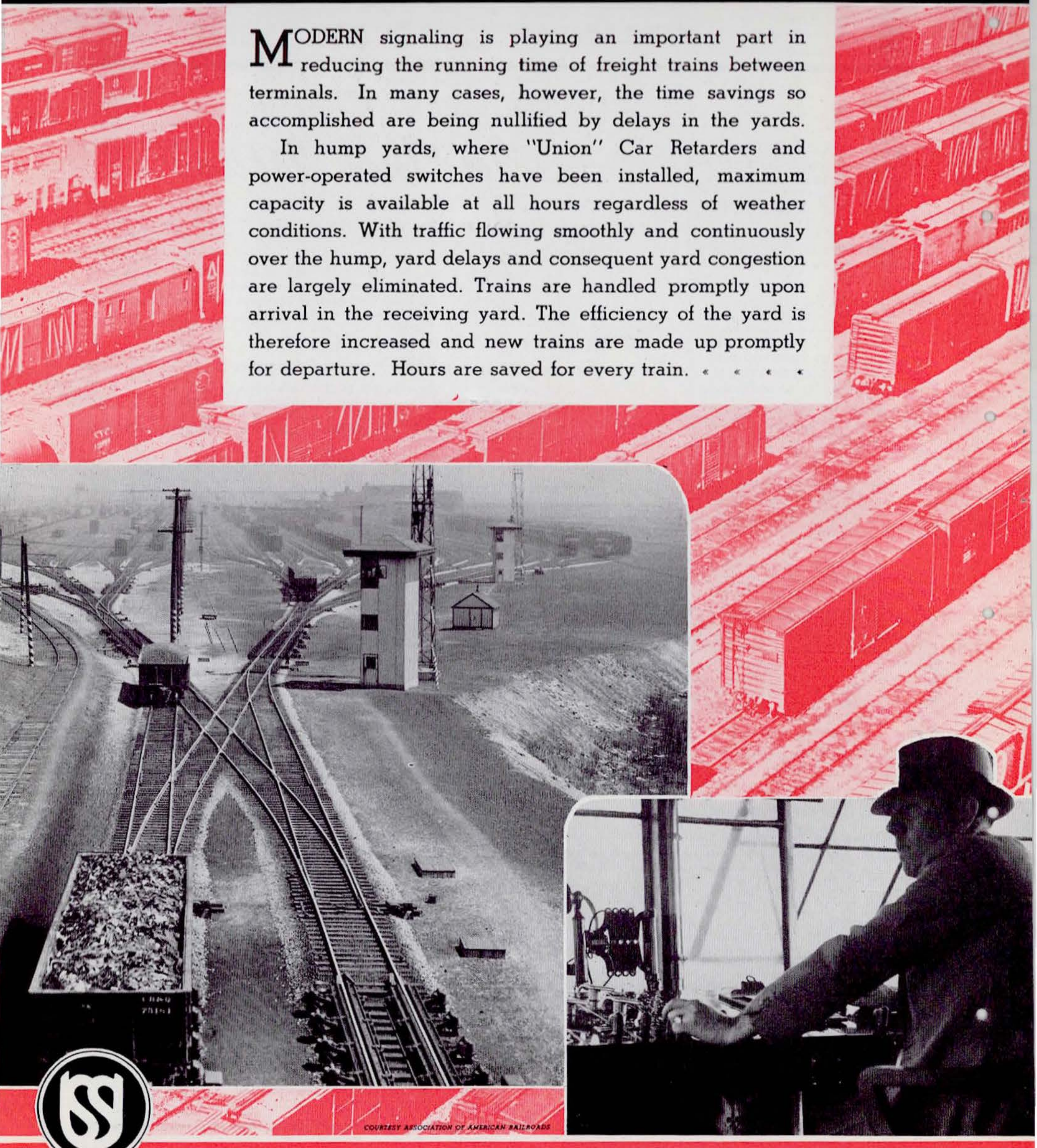
OPERATING REVENUES AND EXPENSES **447**

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

★

PRINTED IN U. S. A.

Time saved between terminals *should not be lost in the yards*



MODERN signaling is playing an important part in reducing the running time of freight trains between terminals. In many cases, however, the time savings so accomplished are being nullified by delays in the yards.

In hump yards, where "Union" Car Retarders and power-operated switches have been installed, maximum capacity is available at all hours regardless of weather conditions. With traffic flowing smoothly and continuously over the hump, yard delays and consequent yard congestion are largely eliminated. Trains are handled promptly upon arrival in the receiving yard. The efficiency of the yard is therefore increased and new trains are made up promptly for departure. Hours are saved for every train. « « « «

COURTESY ASSOCIATION OF AMERICAN RAILROADS

UNION SWITCH & SIGNAL COMPANY

SWISSVALE, PA.

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

The Week at a Glance

SCRAP OUTLOOK DARKENS: War Materials, Inc.—a government corporation established to produce scrap from structures which cannot be demolished at current scrap prices—has produced an insignificant trickle in the way of tonnage. Such is the report of President Moise of this corporation, revealed in an article herein. Where, then, is the scrap coming from to produce steel so badly needed for war and war-connected industries, including the railroads? Mr. Moise says it is the WPB which has hamstrung the corporation's effectiveness; and is even forcing *payment to contractors for not producing scrap,* by requiring the company to liquidate contracts previously made. Looks as if an academic "expert" is on this assignment in WPB.

●

BOTTLENECK EXPANDED: On 43 route-miles of the B. & L. E., with double that length of running tracks, all trains are now centrally controlled by signal indication (except for one little stretch of a couple of miles). The section thus improved has difficult operating characteristics, where train orders could not keep close enough hold on movements to adapt them with desirable rapidity to changing conditions—minimizing delays and maximizing the use of the facilities. C. t. c. has, as usual, greatly improved operations in this area; *how* being the subject of an article elsewhere in these pages.

●

TECHNICAL RESEARCH: Just what the A. A. R. is now doing in the direction of engineering and mechanical research is revealed in a survey elsewhere in this issue. There are, in all, 20 projects on the fire for 1943—7 of them being brand-new. Stresses in tie plates—looking to a more effective design of this article—electrolytic corrosion of steel, and several inquiries into rail troubles are among the engineering investigations. In the mechanical department, new inquisitions have begun on crank pins and hand brakes; and there are several large inquiries which are the joint concern of both engineering and mechanical divisions.

●

WAGE CASES MOVE ON: An "emergency board" will begin hearings in Chicago on March 1 on the non-ops' demand for more money. Mediation has failed and arbitration has been refused in the transportation unions' case. Whether a separate board will be established to inquire into this controversy—or whether, as in the past, the ops' and non-ops' cases will be heard together—had not been revealed as we go to press. Two other emergency boards have been named to deal with other long-pending disputes; details elsewhere herein.

●

"PLANNED IT THAT WAY": The shortage of transportation which experience has long predicted, if the WPB persisted in its niggardly policy of materials allotment to the railroads, has now got one foot over the threshold. The ODT this week warned that serious delays in movement of commodities requiring open-top cars must be expected this year—arising from shortages, not only in such cars, but also in locomotives; from longer hauls on railroads where the rise in traffic volume has been disproportionately great; and from delays to repairs because of slow material deliveries and insufficient labor. "Some system of freight priorities" is coming unless the WPB loosens up with some more equipment, the ODT believes. The way some of the WPB "experts" have talked in times past, such outcome will not be wholly unwelcome.

●

4-8-4's FOR FRISCO: 74-in. drivers and almost 70,000 lb. of tractive force enable the Frisco's new power to pull a lot of freight, and pull it fast—from St. Louis to Monett and to Tulsa. Fifteen of these engines have released lighter Mikado and Mountain types for effective service on lines where traffic demands aren't so important. The new power is pictured and described herein.

●

"MAKE-WORK" EXPOSURE: Acute and energetic Economist Elisha Friedman of New York—long a sympathetic student of labor unionism—several years ago learned to his amazement about "make-work," "featherbedding" and Adjustment Board refereeing on the railroads. He was, at first, skeptical lest such reports as came initially to his attention were overdrawn, but he was also curious; determined to find out for himself. Such inquiry is not easy, but Economist Friedman went to it with habitual doggedness, and, by now, probably nobody on the "outside" (and few on the "inside") has accumulated so much ordered information as he on the contents of the skeleton closet of respected railway unionism. Last Sunday, February 21, he reported his well-documented discoveries in both the New York Times and Tribune.

●

TIME FOR STATESMANSHIP: Citing the absurdity of enginemen's demands for crews in each unit of Diesel locomotives, and of the rapid increase in recent years of the excess of "time paid for" over "time actually worked" in train and engine service, Mr. Friedman points to modification of the make-work and mock-work rules as a large untapped source of skilled manpower, now needed for winning the war. He calls for a Congressional investigation of these unsavory practices, since "at least, the facts should be known to the public." "We seek freedom at home as well as abroad," says Mr. Friedman. "For at home begins—not only charity—but justice and righteousness." Now that impartial and determined scholars are getting hold of and publicizing the sordid facts of this situation, it seems certain that general public enlightenment and disapprobation will continue to grow. Statesmenship by railway union leadership could, of course, avoid this outcome by correcting such abuses; and evidencing some understanding that union welfare needs railways which can attract post-war capital and customers.

PUTTING HEAT ON ODT: So far, transportation policies in this war period have been set by action of long-experienced government authorities, after opportunities for full discussion by all competent parties. Who would care to contend that any other part of the war program has worked better, or even half as well? It has remained for the organized truckmen to attempt to break down this system of control by experience—and to substitute therefor a regime swayed by popular clamor, induced by misinformation and *argumenta ad homines.* In the New York Times of Wednesday this week these far-seeing transportation statesmen had an advertisement in which they asserted that *"with 1/20 the R. R. capacity, trucks haul 1/4 the load in less than half the time."* They attacked the railroads for providing "cumbersome, slow-moving" service; and built up to the impudent conclusion that the war can be won quickly by giving long-haul trucks all the equipment, gas and rubber they can use; lifting the 35 m. p. h. speed restriction; and ending once *"and for all"* any local taxation or control of trucks.

●

WHO FEARS COMPETENCE?: Does a litigant who has an honest case, grounded in fact, seek to avoid his day in a competent and fair-minded court, which knows the facts *and knows him too*—preferring another jurisdiction where the judges are inexperienced, and flexible to the pressure of deceptive information?

●

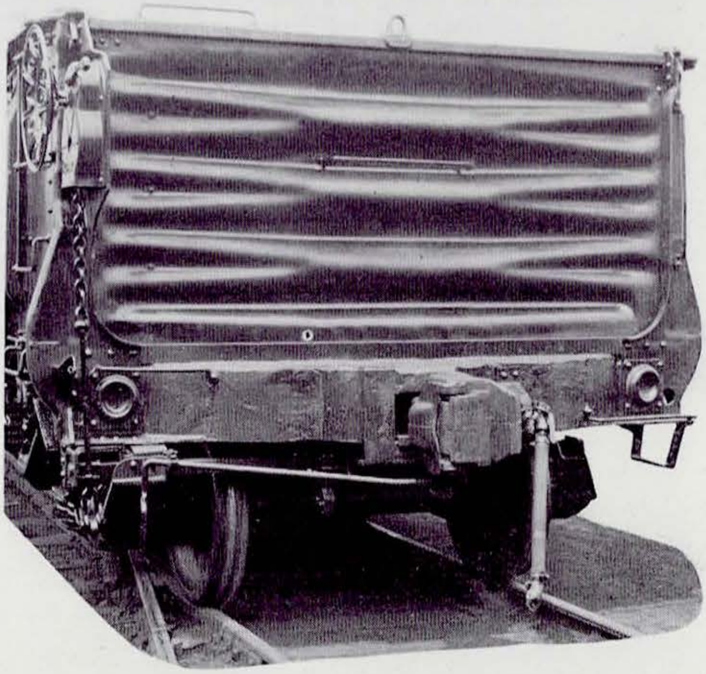
"MIXED ECONOMY": This is the catch-word used to describe a near-Utopia, alleged to exist (Hitler apart) in the Scandinavian countries—where capitalist and socialist business are reported to thrive side by side in happy harmony and mutual affection. Their hopes for all-out socialization in America now receding, the bureaucrats and their followers have hit upon these happy weasel words as a defense to preserve at least the degree of socialization they have already attained. It won't work. Nordic legends to the contrary notwithstanding, we have a "mixed economy" in operation in transportation right here at home—and the bureaucrats themselves proclaim it a failure; the only exit they can discern is more socialization.

●

AVIATION A SPECIAL CASE: The zeal of some air-minded legislators for a special House committee on aviation—removing air transportation from the jurisdiction of the Interstate Commerce Committee which must now consider the relative claims of *all forms* of transportation—has been touched on heretofore, in these pages, particularly in last week's issue, page 405. The Washington Post this week pointed out editorially that, if such a committee of zealots is named, the Interstate Commerce Committee will also have to become a *representative* of the transportation agencies left to its jurisdiction, lest aviation be advanced to the detriment of the national interest in the preservation of other agencies of transportation. The Washington Post gives its editorial the caption: "Voting for a Dogfight."

Dreadnaught DROP END GATE

DESIGNED TO PROVIDE MAXIMUM STRENGTH



GIVES SATISFACTORY SERVICE FOR PRESENT HIGH SPEEDS AND HEAVY LOADS.

ABSORBS SHIFTING LOAD SHOCKS.

WILL STAND ABUSE IN LOWERED POSITION.

STANDARD RAILWAY EQUIPMENT MFG. COMPANY
HAMMOND, INDIANA
WORKS: HAMMOND, INDIANA NEW KENSINGTON, PA.
CHICAGO OFFICE — 310 S. MICHIGAN AVE.

RAILWAY AGE

Efficiency FOR VICTORY

Half-Slave, Half-Free

"Mixed economy" is a simplified recipe for post-war public policy which has enlisted a lot of support, especially among those whose thinking is done in catch-words. It means that the government would continue its invasion of industry by such projects as T. V. A. and, probably, government operation of present war plants in peace-time production. By this process, much if not all of heavy industry would be socialized—but retail trade and small business generally would remain in private ownership and control.

The advantage claimed for this policy is, mainly, that it would retain an area wherein individual initiative could operate—while, by government ownership of a large segment of heavy industry, the public would allegedly be assured that monopolistic practices could not be carried on therein to the consumers' disadvantage. Another attractive argument is that this device would establish competition between socialized and private enterprises, stimulating each to an endeavor to surpass the other.

Such a "mixed economy" is reported to have operated successfully in the Scandinavian countries. Those who cite those nations refrain from remarking that they are smaller than many of our states, and that their populations are homogeneous. Such little countries could almost be governed by town-meeting, without thereby proving that the United States could so conduct its public business. Questionable foreign analogies, moreover, lose all power of conviction in the face of America's own experience in the same field. We have an example of the vaunted "mixed economy" in our transportation industry here at home, on a scale far larger than the Scandinavian or any other countries can proffer.

In 1940 there were 1.3 million miles of surfaced roads in this country which, at the modest estimate of $20,000 per mile, represent a public investment of 26 billion dollars (equal to total private investment in the railways, not only in their roadway, but in cars, locomotives and all other facilities). Up to 1940, the federal government had expended 2½ billions on waterway improvements—half of the total in the decade of the 'Thirties. Leaving out of account extensive commitments in air transportation, it is evident that in our "mixed economy" in transportation, there is public investment in water*ways* and high*ways* alone far exceeding the private investment in rail*ways*.

And how does this "mixed economy" work? The recent transportation report of the National Resources Planning Board observes that an "unequal competitive" situation exists in transportation—to the serious detriment of the national interest in continued efficient railroad service—because "the general taxpayer pays for water and air facilities, and to a considerable extent for highways." To remedy this situation, the Board's report recommends that the railroads' *ways*, also, be acquired by the government—so they, like high*ways*, water*ways* and air*ways*—may be supported in part by general taxation.

"Mixed economy" is, thus, officially proclaimed a failure, because the socialized part enjoys arbitrary advantages over the privately-owned part; and the only corrective measure the bureaucratic planners can think of is to socialize the whole business. Unless and until government removes this inequality—not by socializing the railroads, but by making their socialized competition self-supporting—it is fatuous to regard "mixed economy" as a composition of the socialism-free enterprise controversy; or, indeed, as anything else than a stratagem for the piecemeal socialization of the entire economy.

Heavy Work Programs Call for More Supervision

Important as skilled planning and execution of maintenance of way and structures operations have been in past years, there has never been a time when they were more important or essential than they promise to be in the months that are immediately ahead. Confronted with peak war traffic, with its heavy toll on every element of the fixed properties, maintenance programs are certain to be larger than at any time since the late Twenties—they must be larger to keep pace with the wear and tear.

Under even the most favorable conditions, such prospects would call for the most careful planning and supervision of all maintenance of way and structures work. Under the conditions that will prevail this year—with shortages in materials and delays in receiving such as become available; a labor shortage that is certain to become serious in many parts of the country; the limited availability of cars and locomotives for handling maintenance materials; more limited detouring of traffic to simplify maintenance operations; a more insistent demand that work be done without interference with train operations, and the certainty that these conditions will become more serious as the working season progresses—such careful planning and supervision are absolutely essential.

The labor situation will present a special problem to the maintenance forces, both in the shortages that are certain to exist, and in the large numbers of new, inexperienced and less adept men who will be taken on to help fill the ranks. New men are always of limited value until broken in, and the newer men who must be taken on today, largely from those outside military draft age or deferred because of physical disability, are certain to be less efficient, and are liable to be an actual liability for some time, unless and until they are trained in proper and safe working methods.

New labor, not properly supervised, is an inherent waster of man-hours and of materials, and can put in fruitless hours of work unless its effort is properly planned and directed. Furthermore, inexperienced labor can damage equipment and tools and many elements of the track structure itself. Even in such routine operations as tie renewals and tamping, improper methods can lead to wasted effort and to early damage of both ties and rails. Likewise, inexperience and carelessness in rail laying operations, in even the smallest detail, can be costly in wasted labor and damaged materials—and there is no room for such in the months ahead.

Knowing these facts, those charged with the responsibility for the large programs of maintenance of way and structures work that must be completed in the coming months must not allow actual operations to anticipate most careful planning, and must organize to see that plans, once made, are carried out fully, accurately and safely. To insure that they will be, every maintenance officer might well ask himself the question—have we planned adequate supervision to meet present-day conditions? Having answered this question to his own satisfaction, he should be encouraged in arranging for that which is determined as absolutely essential.

Track Changes With C.T.C.

On many railroads passing tracks, crossovers, and yard connections installed years ago have not been changed to conform to requirements of present-day train operation. To conserve materials and labor in maintenance, as well as to recover usable materials, every main track switch that is no longer required should be removed, and the rail on passing tracks which is not now needed should be recovered for use elsewhere or for scrap. Definite action on these matters is especially necessary when planning a centralized traffic control project, because the quantities of signaling materials required are largely dependent on the number of main track switches to be equipped with power machines, or with electric locks if left on hand-throw. On the other hand, the installation of C. T. C. itself permits a reduction in the number of passing tracks and main line switches below those otherwise required.

In numerous C. T. C. territories, the over-all time of freight trains has been reduced as much as one minute for each mile, thus reducing the number of meets and passes. The result is that, even with increased traffic, a certain number of the passing tracks that have been required previously can be taken out of service without hampering train operations. On a 92-mile single-track C. T. C. project handling up to 40 trains daily, it was possible to take out of service 8 of the original 19 passing tracks. Similarly on a 170-mile project, 8 passing tracks were not equipped. On still another 58-mile territory, 3 of the 11 passing tracks were omitted, and on another single-track project of 67 miles that is handling up to 40 trains daily, 3 of 17 passing tracks were removed.

On some of these projects, a part of the rail recovered has been used to lengthen other passing tracks, so that they will hold longer trains; this increased length of passing tracks is an aid also in permitting meets to be made without either train being required to stop. In other territories, the rail removed from passing tracks is being used to construct longer leads at yards, thus avoiding delays to trains arriving or departing. Again, in localities where several main train switches, leading to house tracks or industry spurs, are located within a short distance, the construction of a lead, to include the switches for these various spurs, results in only one main track switch. In all these various ways, turnout and track materials are put to constructive use and train operation is improved at the same time.

Suggestion Systems

In 1929 the Lincoln Electric Company established an employee suggestion system. In a brochure recently prepared by its president, James F. Lincoln, the rather significant statement is made that "this plan not only resulted in many good ideas, but also kept those executives primarily responsible for such progress on their toes." Incidentally, this suggestion system is only one part of an elaborate program built up over the years for inducing intelligent employee co-operation on the part of the Lincoln workers.

Several railroads have been considering the advisability of installing suggestion systems. With no reference to the Lincoln Company and its practices, the following question has been raised in informal discussions by railroaders: "Is the suggestion system an attempt to atone for a lack of leadership training and ability on the part of the foremen and supervisors?" The inference is, of course, that good foremanship training courses and a better understanding of the principles of leadership might in some instances, at least, accomplish as much, or even more than the suggestion systems, at less expense and by a more normal process. Does it not also suggest that so radical an innovation as an employee suggestion system should not be adopted without most careful study and thorough advance preparation and adjustments, to insure that it will fit in as the natural part of a larger and more comprehensive program for greater efficiency?

Electrical Standards

The term "war-time standard" is a designation frequently given to something which is a departure from standards. In the case of the electrical industry, it usually has to do with the use of substitute materials or permissible increases in loads (above rating) on electrical machinery.

Regulations governing the use of materials have not imposed serious difficulties on railroad electrical maintenance, but construction work requiring more than one thousand dollars worth of material really calls for ingenuity. After the bill of material is made out (with an eye to keeping it within permissible limits) it is sent to Washington for approval. After a few weeks it is returned and it may appear that everything has been given a high rating. But the engineer is disabused when he reads the footnotes. Then he discovers perhaps that he is allowed ten per cent of the needed conduit, that wire must be of a smaller size than that specified, that no rubber insulation shall be used, that the amount of metal allowed prohibits the use of metal fittings, etc.

This means that if the installation is to be completed at all, the railroad must depart from electrical code requirements. Modifications of the code cannot keep pace with material limitations and the local inspector must either disapprove the work or wink at violations. This is of no concern to Washington, but it is a real problem to the railroads. By special dispensation of a city council, a temporary installation which does not conform with code requirements may sometimes be made. As a result, a considerable amount of the work now being done must be removed and replaced with standard material after the war. This will make work, but "leaf raking" is not going to rehabilitate the railroads.

It is possible, however, that some good will come of it. Standards are necessary for safety, efficiency and uniformity, but, like habits, they may also be lazy men's devices which avoid work at the expense of progress. The present circumstances will test the value of many existing standards and will introduce some new methods calling for a revision of old ones. They also present an opportunity to the progressive manufacturer. A construction job now is an expensive headache to the railroad and it very probably means a loss to the supply company; but if the latter's representatives will try to anticipate the railroads' present needs, they will earn the lasting gratitude of the railroad engineers and may succeed in establishing new materials and devices as standards.

Index to Volume 113

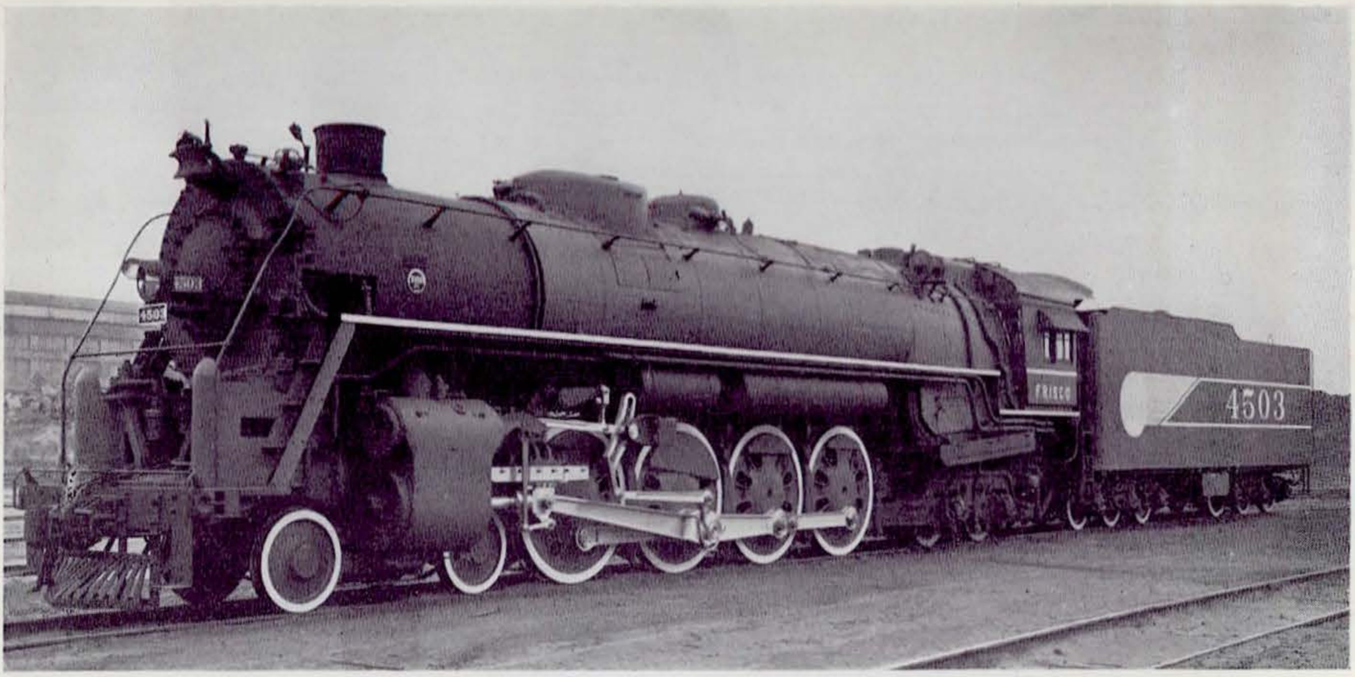
The indexes to the latest volume of the *Railway Age*, July to December, 1942, are now ready for distribution and copies may be had by those subscribers desiring them. Requests should be addressed to the Circulation Department, *Railway Age*, 30 Church Street, New York. Subscribers who have in previous years made application for the index need not apply again; they will continue to receive it as long as they continue to subscribe.

Innovations—a Middle Road

"Everywhere there is a class of men who cling with fondness to whatever is ancient and who, even when convinced by overpowering reasons that innovation would be beneficial, consent to it with many misgivings and forebodings. We find also everywhere another class of men sanguine in hope, bold in speculation, always pressing forward, quick to discern the imperfections of whatever exists, disposed to think lightly of the risks and inconveniences which attend improvements, and disposed to give every change credit for being an improvement.

"In the sentiments of both classes there is something to approve. But of both the best specimens will be found not far from the common frontier. The extreme section of the one class consists of bigoted dotards: the extreme section of the other consists of shallow and reckless empirics."

—*Macaulay.*



Baldwin Builds 4-8-4 Locomotives For Service on Frisco

Fifteen units having a tractive force of 69,800 lb. and total engine weight of 462,500 lb. have made it possible to release lighter power for other service

THE St. Louis-San Francisco has placed in service 15 locomotives of the 4-8-4 type which were built by the Baldwin Locomotive Works and delivered between August and October of last year. Twelve of these new units are coal-fired freight locomotives and the remaining three are oil-fired and equipped for passenger service. Except for the slight variations necessitated by the difference in fuel all of the group are similar in design. The weights of the oil-burning passenger units are: 278,300 lb. on drivers; 454,000 lb. total engine, and 346,000 lb. for the tender. All have 74-in. drivers and 69,800 lb. tractive force. One table accompanying this article gives the weights and dimensions of the freight locomotives.

The new locomotives are in operation on the Eastern division of the Frisco from St. Louis to Monett, Mo., and over the Southwestern division to Tulsa, Okla. The addition of these locomotives, used in conjunction with heavy Mountain type power previously built, has enabled the road to release a number of Mikados and medium-weight Mountain type locomotives for service on other divisions.

The Running Gear

The foundation of the locomotive is a General Steel Castings Corporation bed. The cylinders and valve chambers are fitted with bushings of Hunt Spiller iron. The leading and trailer trucks were supplied by the General Steel Castings Corporation. Engine and tender axles are carbon steel and all engine and tender journals are equipped with Hennessy lubricators. The main driving journals are 13 in. by 14 in. and the others are 12 in. by 14½ in. The trailing-truck journals are 9 in. by 14 in. and the engine truck journals are 7 in. by 12 in. Franklin compensators and snubbers are used on all driving wheels and the Alco lateral motion device is applied at the front driver.

The cylinders are 28 in. bore and 31 in. stroke with 14-in. piston valves having 8 in. travel. The valve gear is the Walschaert type controlled by Franklin Type E power reverse gear. The piston rods and crank pins are carbon steel with inside-lubricated hollow-bored main pins. The side and main rods are forged manganese-molybdenum steel with Mangus bushings. The crossheads are of the multiple bearing type. The driving-wheel centers are the Boxpok type.

In counterbalancing these locomotives the 2,001 lb. of reciprocating weight on each side is balanced with a 601-lb. overbalanced distributed 100 lb. in the main wheel and 167 lb. in each of the other three drivers. The dynamic augment at diameter speed is 8,300 lb.

Mechanical pressure lubrication for cylinders and valves is supplied by a Nathan DV-5, 25-pint, 5-feed lubricator driven from the valve motion on the right side. Alemite grease lubrication is used at several locations throughout the running gear and Chicago flange oilers complete the equipment. The lubricator feed lines from the Nathan lubricator are ⅜-in. Bundyweld steel tubing.

The engine brake schedule is No. 8 ET and the equipment was supplied by the New York Air Brake Company. Air is supplied by two 8½-in. cross-compound compressors located on brackets at the front end. The air lines between engine and tender are Goodall semi-metallic with Franklin sleeve-joint connectors for stoker engine and steam-heat lines. Barco flexible connectors are used on the feedwater-heater steam line.

The tender draft gear is the Miner A5XB. Between engine and tender are Franklin Type E-2 radial buffers.

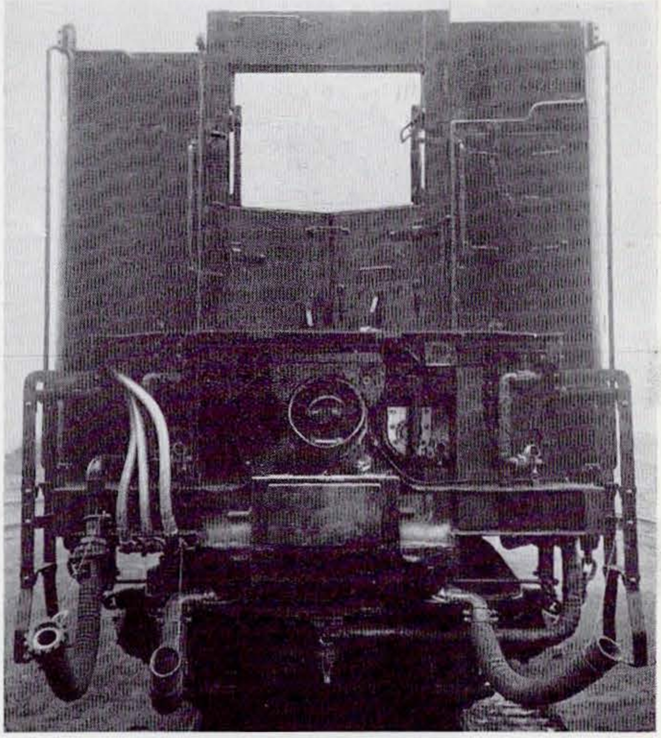
General Dimensions and Weights of the St. Louis-San Francisco 4-8-4 Locomotives

Railroad	St. Louis-San Francisco
Builder	Baldwin Locomotive Works
Type of locomotive	4-8-4
Road numbers	4500-4511 Freight 4512-4514 Passenger
Date built	August, 1942
Service	(12) freight—(3) passenger
Rated tractive force, engine 85 per cent, lb.	69,800
Weights in working order, lb.:	
On drivers	280,000
On front truck	79,000
On trailing truck	103,500
Total engine	462,500
Tender	275,400
Wheel bases, ft.-in.:	
Driving	19 - 3
Engine total	46 - 6
Engine and tender, total	92 - 4
Driving wheels, diameter outside tires, in.	74
Cylinders, number, diameter and stroke, in.	2 - 28 x 31
Valve gear, type	Walschaert
Valves, piston type, size, in.	14
Maximum travel, in.	8
Boiler:	
Steam pressure, lb.	250
Diameter, first ring, inside, in.	85 - 15/16
Firebox length, in.	132 - 1/8
Firebox width, in.	96 - 1/4
Combustion chamber length, in.	77
Arch tubes, number and diameter, in.	2 - 3½*
Thermic syphons, number	3
Tubes, number and diameter, in.	206 - 2¼
Flues, number and diameter, in.	63 - 5½
Length over tube sheets, ft.-in.	20 - 0
Fuel	(12) Freight-bituminous coal (3) Passenger-Oil
Grate area, sq. ft.	88
Heating surfaces, sq. ft.:	
Firebox and comb. chamber	407
Arch tubes	19.5
Syphons	117.5
Firebox, total	544
Tubes	2,416
Flues	1,806
Evaporative, total	4,766
Superheating	1,508
Combined evap. and superheat.	6,274
Tender:	
Style	Rectaugular U
Water capacity, gal.	18,000
Fuel capacity, tons (12 locomotives)	24
Fuel capacity, gal. (3 locomotives)	6,500
Trucks	2—six-wheel

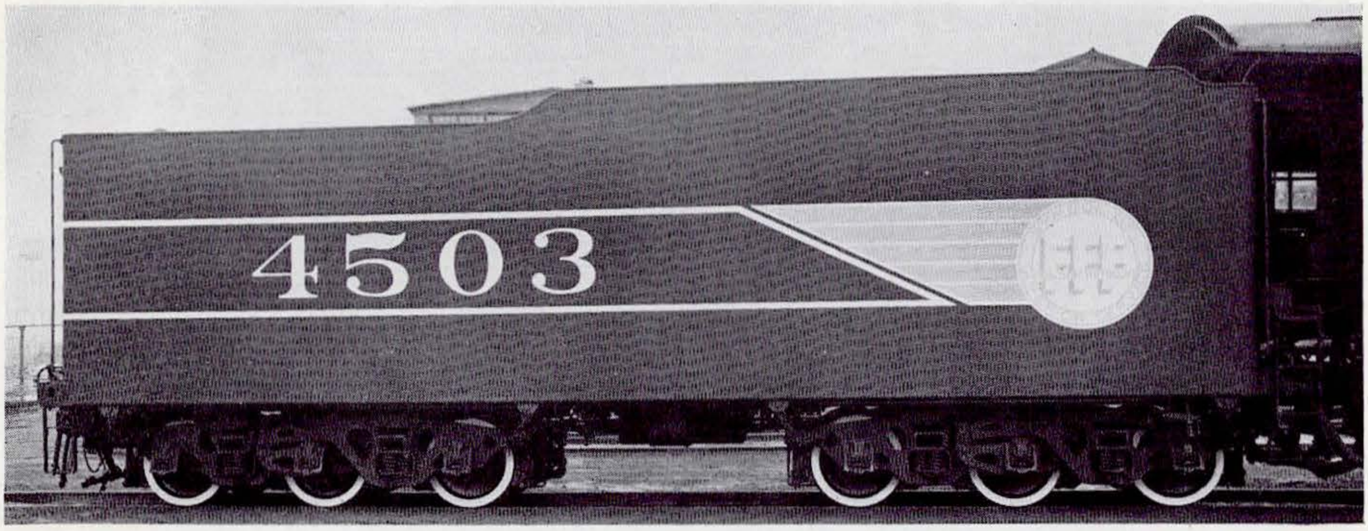
* On coal-burning locomotives only.

The Boiler and Appurtenances

The boilers are of the conical type, built for a 250-lb. working pressure. The barrel is constructed in three courses the first of which is tapered on top and straight at the bottom. The inside diameters of this course vary from $85\frac{15}{16}$ in. at the front to $89\frac{23}{32}$ in. at the rear. The sheet thickness is $1\frac{1}{32}$ in. The second course is straight on top and tapered at the bottom with the inside diam-



Front End of the Tender Showing Various Engine Connections



The Tender of the Coal-Burning Freight Locomotive eter varying from $91\frac{25}{32}$ in. to $95\frac{9}{16}$ in. The sheet thickness is $1\frac{3}{32}$ in. The third course is straight, $97\frac{3}{4}$ in. inside diameter, and rolled from $1\frac{1}{8}$ in. plate. The back tube sheet, combustion chamber and outside throat sheets are rolled from $\frac{1}{2}$-in. plate; the crown and furnace door sheets are $\frac{3}{8}$-in. plate and the crown and furnace side sheets are in one piece. The outside throat sheet is 1 in. thick and the back head is $\frac{9}{16}$ in. The firebox roof sheet is $1\frac{1}{8}$ in. thick and this sheet is joined to the lower outside firebox side sheets, $\frac{5}{8}$ in. thick, at a point between the tenth and eleventh rows of staybolts. The front tube sheet, $\frac{5}{8}$ in. thick, is a flat sheet of slightly smaller diameter than the inside of the first course. It is welded to a $\frac{3}{4}$-in. by 4-in. ring which is secured to the barrel by a single row of rivets and seal welded at the top center line.

Welding was used extensively in the construction of these boilers. In addition to the front tube sheet, already mentioned, the back tube sheet is welded to the combustion chamber and the latter to the inside throat sheet. The roof sheet is welded to the lower side sheets; firebox sheets to mudring; crown to door sheet; door sheet to back head in the firedoor opening, and the syphons are welded to the crown and throat sheets.

A complete installation of Flannery flexible staybolts is used in the combustion chamber, throat sheet, the breaking zones of the firebox and in the two outside rows of the back head.

A feature of these boilers is the unusually large radius, 15 in. in the back head corners.

The boilers are arranged for a Coffin Style 4, 63-unit superheater with a dome throttle valve operated by a rod through a back-head stuffing box. A Coffin Type D feedwater heater, together with two Ohio 10,000-gal. live-steam injectors, supply boiler feed water. The boilers have three Nicholson syphons, two in the firebox and one in the combustion chamber and the coal burning locomotives have, in addition, two $3\frac{1}{2}$-in. arch tubes between the syphons and the side sheets. The safety valve equipment consists of four $3\frac{1}{2}$-in. Ashton valves. The boilers are equipped with Signal Foam Meter, TZ blow-off cocks with Okadee separator and muffler. On the coal-burning locomotives Firebar grates, Standard HT stoker and Franklin butterfly firedoor are used.

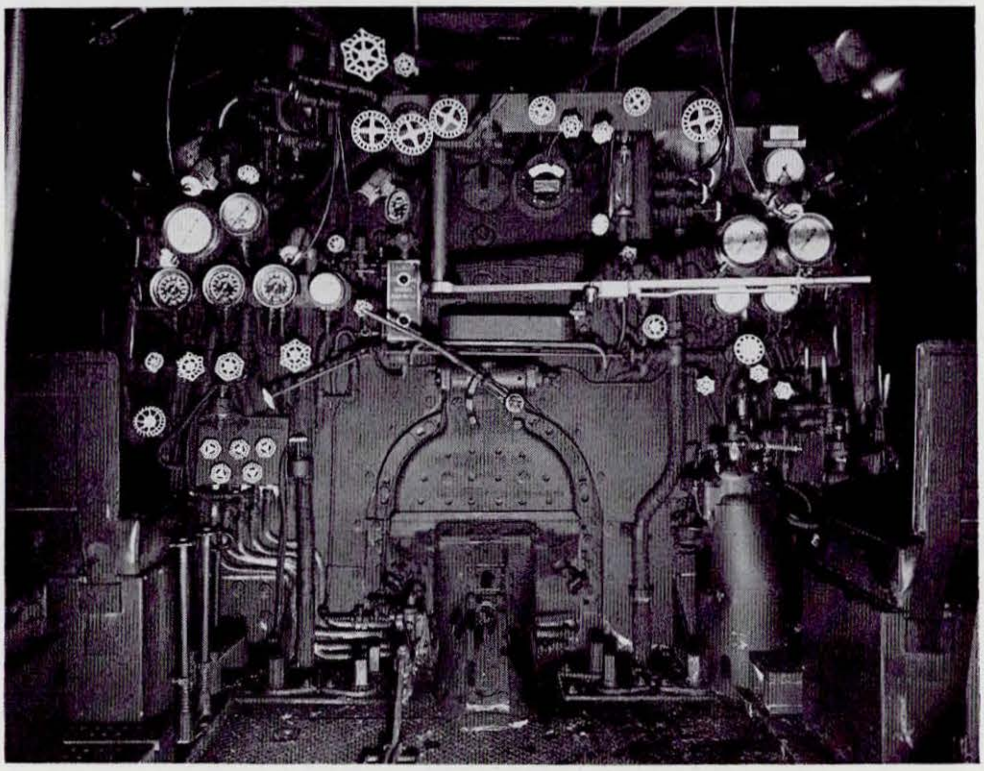
The Tenders

The tenders have rectangular tanks of 18,000 gal. water capacity built on Commonwealth cast-steel water-bottom underframes. The tender is mounted on two Buckeye six-wheel trucks having $6\frac{1}{2}$-in. by 12-in. journals and 36-in. rolled steel wheels. The feedwater heater is located in the right front leg of the tender tank. The stoker engine is also located on the tender. The coal space is equipped with a Standard Type DA coal pusher.

The tender brake equipment was furnished by American Steel Foundries and the trucks are equipped with two 14-in. by 12-in. brake cylinders. The brake is designed for a braking load of 144,000 lb. (85 per cent of light weight) at 50-lb. cylinder pressure.

Partial List of Materials and Equipment on the St. Louis-San Francisco 4-8-4 Locomotives

Engine bed; engine- and trailing-truck frame	General Steel Castings Corp., Eddystone, Pa.
Driving and trailer wheel tires; springs, driving and trailer	Railway Steel Spring Div., American Locomotive Co., New York.
Lubricators for engine and tender truck boxes and driving boxes	Hennessy Lubricator Company, New York
Axles, engine; crank pins	Standard Steel Works Division of The Baldwin Locomotive Works, Philadelphia, Pa.
Driving and truck box brasses; frame shoes; rod brasses	Magnus Metal Div., National Lead Co., New York
Lateral motion device	American Locomotive Co., New York
Driving-wheel compensators and snubbers	Franklin Railway Supply Co., Inc., New York
Pilot coupler	American Steel Foundries, Chicago
Pilot uncoupling rigging	Standard Railway Equipment Mfg. Co., Chicago



Cab Arrangement of the Coal-Fired Freight Locomotive

Boiler and firebox steel	Lukens Steel Co., Coatesville, Pa.
Engine-truck wheels	American Rolling Mill Co., Middletown, Ohio
Driving-wheel centers and trailing-centers; safety bar	Standard Steel Works Division of The Baldwin Locomotive Works, Philadelphia, Pa.
Radial buffer, power reverse gear	Franklin Railway Supply Co., Inc., New York
Drawbar, engine and tender	American Steel Foundries, Chicago
Jacket iron	American Rolling Mill Co., Middletown, Ohio
Boiler lagging	Johns-Manville Sales Corp., New York
Staybolt steel	Penn Iron & Steel Co., Creighton, Pa.
Flexible staybolts	Flannery Bolt Co., Bridgeville, Pa.
Tubes and flues	Jones & Laughlin Steel Corp., Pittsburgh, Pa. National Tube Co., Pittsburgh, Pa.
Cylinder and valve bushings; valve bull rings; valve packing rings; cylinder packing rings; piston heads	Hunt-Spiller Manufacturing Corporation, Boston, Mass.
Cylinder cocks; piston rod packing; valve stem packing; tank valves	T-Z Railway Equipment Co., Chicago
Piston rods; main and side rods; crossheads	Standard Steel Works Division of The Baldwin Locomotive Works, Philadelphia, Pa.
Flexible air connection between engine and tender	New York Air Brake Co., Watertown, N. Y.
Flexible steam connection between engine and tender	Franklin Railway Supply Co., Inc., New York
Rivets	Barco Manufacturing Co., Chicago The Champion Rivet Co., Cleveland, Ohio
Signal Foam-Meter	Dearborn Chemical Co., Chicago
Foundation driver brake	American Brake Div., Westinghouse Air Brake Co., Wilmerding, Pa.
Brake shoes	American Brake Shoe & Foundry Co., New York
Locomotive brake equipment; air signal equipment	New York Air Brake Co., Watertown, N. Y.
Rod brasses	Magnus Metal Div., National Lead Co., New York
Lubricators, mechanical	Nathan Manufacturing Co., New York
Lubricator tubing	Bundy Tubing Co., Detroit, Mich.
Flange lubricator	Ohio Injector Company, Wadsworth, Ohio
Water column	Edna Brass Mfg. Co., Cincinnati, Ohio
Running boards	Alan Wood Steel Co., Conshohocken, Pa.
Valve pilot	Valve Pilot Corporation, New York
Gage cocks	The Prime Manufacturing Co., Milwaukee, Wis.
Blower valve	Locomotive Equipment Division, Manning, Maxwell & Moore, Bridgeport, Conn.
Blower fittings	Barco Manufacturing Co., Chicago
Safety valves	Ashton Valve Co., Boston, Mass.
Steam heat reducing valve	Vapor Car Heating Co., Inc., Chicago
Blow-off valves	T-Z Railway Equipment Co., Chicago
Smokebox hinges	The Okadee Company, Chicago
Sander; sander operating valve	Graham-White Sander Corp., Roanoke, Va.
Syphons, firebox	Locomotive Firebox Co., Chicago
Brick arch	American Arch Co., Inc., New York
Superheater	The J. S. Coffin Jr., Company, Englewood, N. J.
Pyrometer	The Superheater Company, New York
Throttle rod packing	The Garlock Packing Company, Palmyra, N. Y.
Piping	National Tube Co., Pittsburgh, Pa.
Pipe covering	Gustin-Bacon Mfg. Co., Kansas City, Mo.
Feedwater heater	The J. S. Coffin Jr., Company, Englewood, N. J.
Injectors; injector checks	Ohio Injector Co., Wadsworth, Ohio
Blowoff muffler and separator	The Okadee Company, Chicago
Washout plugs	The Prime Manufacturing Co., Milwaukee, Wis.
Stoker	Standard Stoker Co., Inc., New York
Firedoor	Franklin Railway Supply Co., Inc., New York
Grates	Waugh Equipment Co., New York
Back pressure gages; steam and air gages	Ashton Valve Co., Boston, Mass.
Bell ringer	Transportation Devices Corp., Indianapolis, Ind.
Whistle	Locomotive Equipment Division of Manning, Maxwell & Moore, Inc., Bridgeport, Conn.
Cab lamps; headlight and generator; marker classification and back-up lamps	The Pyle-National Company, Chicago
Cab seat covering	Athol Mfg. Co., Athol, Mass.
Steam-heat connectors	Vapor Car Heating Co., Inc., Chicago
Tender:	
Truck wheels; axles	Standard Steel Works Division of The Baldwin Locomotive Works, Philadelphia, Pa.
Trucks	Buckeye Steel Casting Co., Columbus, Ohio
Frame	General Steel Castings Corp., Eddystone, Pa.
Air brake; air signal	New York Air Brake Co., Watertown, New York
Brake equipment	American Steel Foundries, Chicago
Brake shoes	American Brake Shoe & Foundry Co., N. Y.
Coupler	The Symington-Gould Corp., Rochester, New York
Coupler yoke	National Malleable and Steel Castings Co., Cleveland, Ohio
Uncoupling attachment	Union Metal Products Co., Chicago
Draft gear	W. H. Miner, Inc., Chicago
Coal pusher	Standard Stoker Co., Inc., New York
Safety bars	Standard Steel Works Division of The Baldwin Locomotive Works, Philadelphia, Pa.
Tank valve; washout plug	T-Z Railway Equipment Co., Chicago
Slack adjuster	Royal Railway Improvement Products Corp., Wilmington, Del.

Wage Cases Moved Along Fast This Week

FAILURE of either mediation or arbitration to provide a solution to the wage controversy with the transportation unions; and appointment of emergency boards to deal with the wage demands of the non-operating unions and two other less-comprehensive controversies—these were the major developments in the "social gains" department of the railroad industry during the past week. Mediation of the demands of the five transportation unions for a wage increase of 30 per cent and a minimum of $3 per day, which was started by George A. Cook, chairman of the National Mediation Board, at Chicago on February 18, was terminated on February 23, without a settlement of the dispute. Both parties refused to arbitrate, and later the unions asked the National Railway Labor Panel to appoint an emergency board to hear the dispute.

In reply to Mr. Cook's request that the controversy be submitted to arbitration, the unions merely stated that they could not agree to arbitrate. Each carrier's conference committee, on the other hand, explained its position. The Eastern Carriers' Conference Committee said, "The past record of these carriers will demonstrate our sympathy with the principles of arbitration. There are, however, many impelling reasons for not arbitrating the present demands made upon us by the brotherhood in this proceeding. We refer to the fact that the wage demands are clearly not in consonance with the Anti-inflation Act of October 2, 1942, and the President's Executive Order of October 3, 1942, and that the subject matter is one which concerns not only those employees represented by the five organizations involved in this case, but all employees of the carriers, including those represented by the Fifteen Cooperating Railway Labor Organizations involved in another case." The Southeastern Carriers' Conference Committee stated that, "it believes that arbitration is ordinarily a suitable method for settling labor disputes but in view of the special factual and legal circumstances surrounding this case, we think arbitration is not practicable and that it could not be effective."

The Western Carriers' Conference Committee, "feels that under existing conditions, the present dispute as to wage increases sought by the five organizations and by the Fifteen Cooperating Railway Labor Organizations constitute an industry problem which should be handled on an industry basis. This seems essential under the general stabilization program in view of the magnitude of the railroad industry, the number of men involved and the importance of the industry in the economic life of the nation.

"If the whole pending railroad wage matter could be arbitrated as an industry matter in a single proceeding so that an arbitration board would have the entire picture before it, the Western Carriers' Conference Committee would favor such a course, subject of course to proper safeguards under the Stabilization Act and executive orders."

Three emergency boards, including one which will investigate demands of non-operating employees for a wage increase of 20 cents an hour, a minimum wage of 70 cents an hour and a closed shop, have been appointed by Dr. William M. Leiserson, chairman of the National Railway Labor Panel. One of the other boards will consider the long pending demands of the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen & Enginemen for additional men on Diesel-electric locomotives and for a change from the weight-on-drivers to a horsepower basis for the computation of Diesel operators' pay; while the third will investigate a wages and rules dispute between the Brotherhood of Railroad Trainmen and the Pacific Electric.

Members of the board appointed to consider the demands of the non-operating employees are: Dr. I. L. Sharfman, chairman of the Department of Economics, University of Michigan (chairman); Walter T. Fisher, Chicago attorney; and John A. Fitch, professor at the New York School of Social Work. Its investigation will begin at Chicago on March 1.

If precedent were followed, this board would also get the dispute involving the wages of the operating brotherhoods on which mediation failed this week. In other general wages cases of recent years, the same board has functioned with respect to all employees. This was true of the proceeding which resulted in the mediation settlement of December, 1941, and of that involving the employees' successful fight against the railroads' 15 per cent wage cut proposal of 1938.

Dr. Sharfman, author of the five-volume work, the Interstate Commerce Commission, which was published during the 1931-37 period, has previously served in all kinds of proceedings under the Railway Labor Act—as a member of emergency boards appointed under section 10, as a referee for the National Railroad Adjustment Board, and as an arbitrator in disputes involving employees of the Railway Express Agency and of Transcontinental & Western Air, Inc. Dr. Sharfman resigned a referee assignment for Adjustment Board No. 1 in April, 1938, reportedly because of incivilities to which he was said to have been subjected by some union adherents. He later served, however, as referee for Board No. 2. During 1933-35 he was a member of the Federal Coordinator of Transportation's advisory committee on railroad employment. The other two members of this board have not previously served in railway wage proceedings, although Mr. Fisher was an alternate "public" member of the National Defense Mediation Board, predecessor to the National War Labor Board.

The dispute involving the basis of pay for Diesel operators will be investigated by a board headed by Frank M. Swacker, a New York attorney, with George W. Stocking, professor of economics at the University of Texas, and John A. Lapp, labor arbitrator of Chicago, as the other two members. All three have previously served in Railway Labor Act proceedings, Chairman Swacker having at one time got a lot of work as an Adjustment Board referee. The National Mediation Board's report for the fiscal year ended June 30, 1940, showed that he was during that year paid a total of $22,693.75 for refereeing a total of 323¼ days. This board's investigation will also begin on March 1 at Chicago.

The third board, which will investigate the B. of R. T. dispute with the Pacific Electric, consists of James H. Wolfe, justice of the Supreme Court of Utah (chairman); Judge Frank P. Douglass of Oklahoma City, Okla.; and Gordon S. Watkins, professor of economics at the University of California, Los Angeles, Calif. The former two have previously served in Railway Labor Act proceedings, while Professor Watkins has not. Hearings will begin on March 1 in Los Angeles.

In naming the emergency boards on February 20, Dr. Leiserson followed through promptly from President Roosevelt's February 19 action appointing eight additional members to the Panel from which the boards are chosen. As noted in the *Railway Age* of June 13, 1942, page 1160, the original Panel included nine members including Chairman Leiserson and also Wiley B. Rutledge who has since been elevated to the Supreme Court. The other seven members of the original Panel are Messrs. Fisher, Lapp and Fitch, who have assignments on one or the other of the above boards; William H. Spencer, dean, University of Chicago; Walter P. Stacy, chief justice of the Supreme Court of North Carolina; Dr. Edwin E. Witte of the University of Wisconsin; and Norman Ware, member of the Connecticut State Board of Mediation and Arbitration. The eight additional Panel members appointed by President Roosevelt on February 19 include Messrs. Sharfman, Swacker, Wolfe, Stocking, and Watkins; Robert D. Calkins, dean, School of Business, Columbia University; and Monsignor Francis J. Haas of the Catholic University.

Dr. I. L. Sharfman was born February 10, 1886, in Polonoya, Ukraine, Russia, and was brought to the United States in 1894. He was educated at the Boston (Mass.) Latin School and Harvard University where he was awarded an A.B. degree in 1907 and an LL.B. in 1910. He was admitted to the Massachusetts bar in 1909, and was an assistant in economics at Harvard during 1908-10. In 1910-11 he was professor of law and political science at Imperial Pei-Yang University, Tienstin, China; and in 1912 he was chief investigator for the National Civic Federation's Department on Regulation of Public Utilities. Since 1912 Dr. Sharfman has been associated with the University of Michigan, as lecturer and professor of economics.

Aside from his work in Railway Labor Act proceedings, noted above, his activities have included a 1912-13 assignment as chief investigator for the National Civic Federation of commission regulation of public utilities; and a 1923-24 assignment as director of a National Industrial Conference Board investigation of anti-trust policy. Also, he was in 1938-39 an umpire in a dispute between the General Motors Corporation and the United Automobile Workers. In addition to his work on the Interstate Commerce Commission, Dr. Sharfman's books have included Railway Regulation (1915); and The American Railroad Problem (1921).

Walter T. Fisher was born February 20, 1892, at Chicago, and was educated at Chicago Latin School and Harvard University where he received his A.B. degree in 1913. He studied law at the University of Chicago and at Harvard Law School, receiving his LL.B. from the latter in 1917. The following year Mr. Fisher was admitted to the Illinois bar and has since practiced law in Chicago; although he did serve in Washington, D. C., during 1921-22 as assistant general counsel of the War Finance Corporation. Also, he was president of the Amalgamated Trust & Savings Bank, Chicago, during 1926-29, and during 1941 he served as chairman of the Great Lakes Shipbuilding Stabilization Conference.

John A. Fitch was born at Cumberland, Barron County, Wis., on April 20, 1881. He received his A.B. degree from Yankton (S. D.) College in 1904 and an LL.D. in 1929. He did graduate work in political economy at the University of Wisconsin during 1906-07 and

1908-09. Meanwhile from 1904 until 1906, Dr. Fitch was an instructor at Weeping Water (Nebr.) Academy, and in 1907-08 he was a member of the staff of the Pittsburgh Survey. During 1909-10 he was an expert with the New York State Department of Labor, and from 1911 until 1919 he was editor of the industrial department of The Survey, New York. He first became associated with the New York School of Social Work in 1924, remaining until 1926 and returning again in 1938. Dr. Fitch has also been a lecturer in economics at Columbia.

Report on Collision At Almonte, Ontario

THE Board of Transport Commissioners for Canada has made public its report on the collision of a passenger extra (a troop train) with the rear end of a regular passenger train at Almonte, Ont., on January 7, which resulted in the death of 36 persons and injuries to some 207 others.

The regular train, No. 550, making local stops, left Petawawa, Ont., (118 miles northwest of Ottawa) at 5:35 p. m., bound for Ottawa. Because of heavy holiday traffic, the train lost time and arrived at Almonte (38 miles from Ottawa) at 8:32 p. m., 40 minutes late. When the train stopped at Almonte, according to the finding of the Board, the crew occupied itself with entraining passengers. No flagging was done. Marker lamps and a red lantern at the rear of the train were burning brightly. Sleet and rain were falling, and rear lamps may have been further obscured by steam and by mist from the nearby river. No. 550 remained at the station for 6 minutes, and the rear collision occurred just as the conductor was in the act of giving the air-signal indication to proceed.

The troop train which collided with No. 550 was passenger Extra No. 2802, proceeding in the same direction as the regular train. At Renfrew, 35 miles from Almonte, Extra 2802 was held for 15 minutes under the 20-minute-block rule. It left the coal chute at Renfrew at approximately 7:39 and arrived at Arnprior (18 miles further on) at 8:02 (38 minutes behind the schedule of No. 550, which, however, was steadily falling behind). Extra 2802 covered the distance from Renfrew to Arnprior 6 minutes faster than the schedule of No. 550 between those points. No. 550 left Arnprior at 7:55 and Extra 2802 was held there until 8:15 under the 20-minute rule. The collision at Almonte occurred at 8:38, indicating that Extra 2802 made the Arnprior-Almonte run in 23 minutes—or 5 minutes faster than No. 550's schedule between these stations.

The engineman of Extra 2802 shut off steam at the mile-board approaching Almonte and made a 12-lb. reduction in the train line, reducing speed to about 25 m. p. h. On a curve approaching the station the fireman reported the order-board clear, and brakes were released. The green order-board was subsequently observed by the engineman. Neither the engineman nor fireman saw the red marker lamps nor the red lantern at the rear of No. 550—their first intimation that the train was there coming from the reflection of their headlight on the glass of the rear door of No. 550's rear car, when they were only six or seven car-lengths away. An emergency application of the air was made (throttle already being fully closed) and the brakes took hold (as post-accident inquiry disclosed), but there was not sufficient space in which to bring the train to a stop. The engine of the troop train completely telescoped the rear car (a coach) of the regular train and partially telescoped the next-to-rear car.

The Board draws attention to three of the company's operating rules:

> 36. A red or yellow fusee, as the case may require, will be used for protection of a train which is not making the speed required by schedule or train order and is liable to be overtaken by a following train.
>
> 91 (3). Schedule speed must not be exceeded by schedules of trains other than the first section, nor may a train following a train carrying passengers, exceed the schedule speed of such train unless clearance shows arrival at a station ahead.
>
> 93 (a) . . . The outer main track switches of passing tracks will be considered "station limits," and main track may be used inside of such limits by keeping clear of first and second class trains. All trains except first and second class trains must, unless otherwise directed, approach and pass through such limits, prepared to stop unless the main track is seen to be clear. . . .

The crew of No. 550 had no advice that Extra 2802 was following it, but because it was falling behind schedule and because the rear of its train extended two car-lengths beyond the west switch at Almonte, the Board believes that "good judgment should have dictated to the crew of this train that some protection was necessary, and fusees should have been dropped in accordance with Rule 36."

The failure of the crew of Extra 2802 to observe Rule 91 (3) is viewed by the Board as "a major contributing factor to the accident." The crew of Extra 2802 likewise "did not approach the station limits prepared to stop; the position of the train order signal at Almonte or the train order signal itself had nothing to do with the track occupancy within the station limits at Almonte."

The Board observes that "the operating rules on railroads in the North American Continent have been a matter of continued study for a long period of time by experienced officers and employees of both the Canadian and American railroads, and have been amended on various occasions in the interest of safety"; and concludes:

> "There can be no other conclusion drawn from the facts but that had the rules been observed there would have been no accident. Departure from the rules, resulting in the accident, may be summarized as follows:
>
> "Failure of the crew of passenger extra No. 2802, and in particular the engineer and conductor thereon, to observe the provisions of paragraph 3 of Rule 91 and Rule 93 (a) of the General, Train and Interlocking Rules of the Canadian Pacific Railway Company, in that passenger extra No. 2802 exceeded the schedule speed of train No. 550, and that the engineer of passenger extra No. 2802 did not have his train under control and prepared to stop as he approached Almonte Station. It is also felt that the company's official who was riding this train at the time erred inasmuch as he failed to take such necessary action as would ensure compliance with the rules.
>
> "Neglect of crew of first-class passenger train No. 550 to provide protection by way of red or yellow fusee, as required by Rule 36 of the General, Train and Interlocking Rules of the Canadian Pacific Railway Company, to the rear end of No. 550 when it was known that their train was not making the speed required by schedule, and that the rear end of the train while standing at the station at Almonte projected some 170 feet west of the station limits.
>
> "The west approach to Almonte Station is on a curve, and under certain weather conditions a mist arises from the falls near this west approach to the station. The combination of these facts having been disclosed, it appears that the erection of a station protection signal west of Almonte would be an additional safeguard to a train standing at Almonte Station. A direction to this effect will go to the Canadian Pacific Railway Company accordingly."

What the A.A.R. Has Under Way in Engineering and Mechanical Research

Nearly 850 Test Runs Have Been Made in the Locomotive Counterbalance Tests Conducted

Appropriation of more than $180,000 for work in 1943 under the direction of its own staff, in collaboration with others, will inaugurate or advance 20 important investigations of benefit to the railways and their work for the war

RECOGNIZING the vital part to be played by scientific research and testing in the solution of many of the common problems confronting the railways relating to engineering and mechanical materials and design—more vital in wartime than in peacetime in many respects—the Association of American Railroads, through the research staff of its Engineering and Mechanical divisions is carrying forward its research program of recent years, expanding it in a number of respects to meet new problems brought to the fore by war conditions. Its 1943 program at the present time, which is subject to expansion as the need arises, comprises 20 important projects, the execution of which is estimated to cost more than $180,000 this year. Seven of the projects are entirely new investigations, while the remainder involve the continuation or completion of investigations already under way. Several of the projects have a very direct bearing on the war effort of the country and all have an indirect bearing upon the ability of the railways to meet the demands of the war for adequate, safe and dependable transportation.

The new projects to be undertaken and carried forward in 1943 include comprehensive studies of crank pin failures, geared hand brakes, the welding of locomotive driver burns on rails, shelly spots and head checks in rails, stresses in tie plates, electrolytic corrosion of steel in concrete, and rail gage and wheel contour. The projects being continued embrace the study and investigation of passenger car axles, journal bearing metallurgy, service tests of joint bars, fatigue of joint bars, web stresses in rails, track bolt tension, the welding of manganese trackwork, bridge impact, fatigue of structural welds, locomotive counterbalance, the relation of wheel load to wheel diameter, wheel flat spots, and corrosion from brine drippings.

Engineering Investigations

Welding of Driver Burns on Rails—The newly authorized investigation of the welding of driver burns on rails has for its purpose the reclamation in track, and thus the prolonging of their service life, of rails by developing means of welding and resurfacing driver burns on rails to restore adequate static and impact strength and resistance to progressive fracture. The investigation will be carried out largely in the laboratory of the Southern Railway at Alexandria, Va., employing rolling-load testing machines, and by making regular tensile and drop tests and studies of the steel microstructure.

Stresses in Tie Plates—The new tie plate investigation will have as its primary object the determination of data necessary for the best engineering design of tie plates, with due consideration to the most economical use of metal. Stress measurements on the bottoms of various types of plates will be made in the field with the association's electrical strain measuring equipment, which data will be supplemented by complete laboratory investigations, including photo-elastic studies of stress distribution. The investigation will include plates of various lengths, thickness and cross sections, both longitudinal and transverse, under the varied conditions of support and loading to which they are subject in actual service.

Electrolytic Corrosion of Steel in Concrete—This new investigation will deal with the electrolytic corrosion of catenary foundation reinforcing steel, and the distintegration of catenary foundations themselves, resulting from stray electrical currents. This investigation will comprise a program of tests to determine the flow of current through catenary foundations, guide rods and anchors, with the object of ascertaining what conditions exist, or can be developed, tending to reduce the rate of flow.

Shelly Spots and Head Checks in Rails—The new investigation of shelly spots and head checks in rails is designed to determine the causes of and remedial measures for the shelly condition that is developing on the heads of rails on the outside of curves, a condition that is assuming serious proportions on some of those roads carrying heavy wheel loads and dense traffic. This investigation, which assumes the greatest importance in the light of the critical shortage of rail, will include rolling-load tests in the laboratory of the University of Illinois, and study of the conditions of wheel bearing and lateral pressures on the rail in track.

Service Tests of Joint Bars—The service tests of rail joint bars to be continued in 1943 cover field measurements on "proving ground" installations of 9 one-mile stretches of track on the Santa Fe, laid with 112-lb. rail, and 12 half-mile stretches of track on the Pennsylvania, laid with 131-lb. rail. These test installations were placed in service in 1937, and include various designs of joint bars, both 24 in. and 36 in. long. Since 1937, measurements have been made annually to determine wear, batter, surface and loss of bolt tension, and similar measurements will be made during the present year.

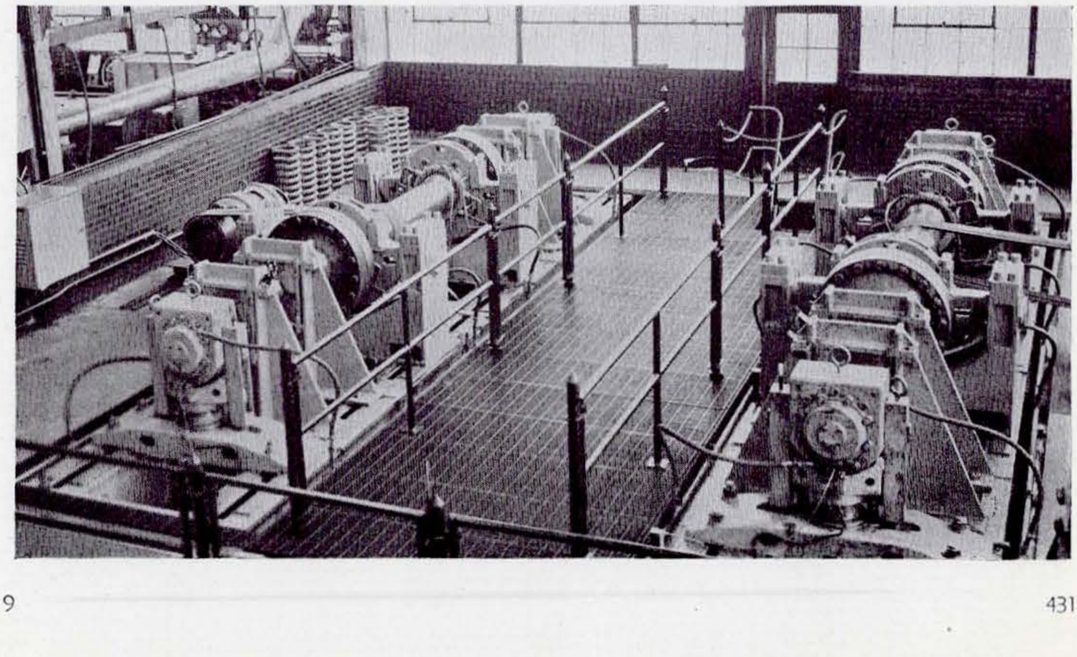
Fatigue Testing of Joint Bars—The project covering the fatigue testing of rail joint bars was started in October, 1938, and carried out at the University of Illinois. In this investigation full size assembled rail joints are tested in a rolling-load machine to determine the fatigue strength of the joints. The complete program for the project includes study in the laboratory of bars of different designs and metallurgy for both 112- and 131-lb. rail, supplemented by service test installations of bars of different designs and metallurgy.

Rail Web Stress—The rail web stress investigation is a continuation of work having for its purpose improvement in the design of the rail web. Measurements of web stresses in actual service have been made with the association's electrical strain measuring equipment; and these measurements will be extended during 1943 and supplemented with measurements on rails with modified web sections.

Rail Joint Bolt Tension Tests—The rail joint bolt tension tests of the association are a continuation of the test installations established in 1938 on the Milwaukee, the Burlington, the Denver & Rio Grande Western, the Erie and the Pennsylvania, involving various weights of rail and lengths and designs of joint bars. This is a "proving ground" test, where measurements are made annually to determine the rate of loss of bolt tension and of rail and joint fishing surface wear. Measurements to date indicate that the major cause of loss of bolt tension and of fishing surface wear is the slippage movement of the rail within the joint bars accompanying temperature changes. It is proposed in 1943 to augment the field work with the construction of a machine to open and close repeatedly the joint gaps of assembled joints in the laboratory for the purpose of further study of the effect of this movement, with particular regard to the possibility of reducing its damaging effects through the use of various types of lubricants.

Bridge Impact—The bridge impact investigation of the association, begun in 1940, has already been extended to structures on the Milwaukee, the Chicago & North Western, the Santa Fe and the New York Central. To date, it has been confined largely to short I-beam spans, with particular regard to the effect of battered rail joints and of open decks as compared with ballasted decks, and to a general stress survey of truss spans. In 1942, measurements were made on two I-beam spans and three truss spans under the passage of a total of 983 trains. In the work for 1943, it is proposed to compare the impacts on open and ballasted-deck girder spans under regularly scheduled trains, supplemented by oscillator tests to determine damping effects, and also to determine the impact effects on one or more truss spans. As in the past, the association's electrical strain measuring equipment will be used in this work.

Welding of Manganese Trackwork—The studies to be carried out in 1943 of the welding of manganese trackwork will continue an investigation in this regard started in 1939. This investigation involves measurements of a "proving ground" installation of 24 special test frogs installed on the Milwaukee to determine the comparative performance of various welding techniques, supplemented by investigations in the laboratory of this



The Special Testing Machines That Have Been Employed in the Study of the Design and Metallurgy of Passenger Car Axles

road of the micro-structure of welds made with various types of welding rods and by various techniques.

Fatigue of Structural Welds—The investigation of fatigue of structural welds referred to in the foregoing is being conducted by the Engineering Foundation, the A.A.R. being one of the major contributors. This work, which is being carried out at the University of Illinois, consists of laboratory investigation of structural welds in special fatigue testing machines designed to submit welds of large size to repeated loadings. Of particular interest to the railways in the program for 1943 are the scheduled tests in repeated flexure of short I-beam spans with both riveted cover plates and stiffeners and with welded cover plates and stiffeners, for comparisons.

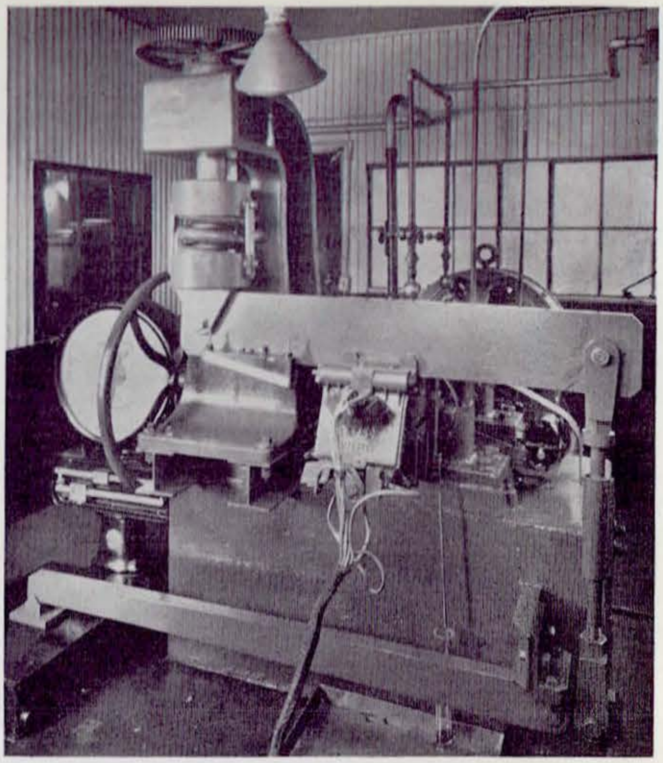
Mechanical Investigations

Crank Pin Research—One of the mechanical department investigations to be inaugurated in 1943 has to do with crank pins. A sufficient number of crank pin failures have occurred to indicate that the surface condition of crank pins has an important influence on their fatigue strength, and that there is need for a comprehensive study of this condition. Accordingly, a research program has been planned, to be carried out at the laboratory of the Timken Roller Bearing Company, at Canton, Ohio, to include the effect of surface smoothness, fillet radius, flame hardening, cold working, etc. Car axle fatigue testing machines have been modified for these tests and, employing them, substantial progress in crank-pin research is expected this year.

Geared Hand Brakes—Another new mechanical department investigation scheduled for the present year, and, in fact, started on January 20 in the A.A.R. laboratory at Purdue University, has to do with geared hand brakes. Specifications for testing these brakes have been prepared and adopted by the Mechanical division, and the equipment at Purdue includes a special test machine and other equipment to carry out tests in accordance with these specifications.

Journal Bearing Research—The journal bearing research program being conducted under the direction of the A.A.R. was started in January, 1942, and is designed to investigate the possibility of conserving the strategic metals in bearings, such as copper, lead and tin, by reducing the amount of these metals now called for. Accelerated tests are being made in the laboratory of the Railway Service & Supply Corporation, Indianapolis, Ind., on a special bearing testing machine. Bearings showing merit in these tests are given actual service trials. The bearings being tested include new designs, new materials and new material combinations.*

Part of the Association's Electrical Strain Gage Measuring Equipment, Showing Two 12-Element Oscillographs, Control Units and Electronic Oscillators



Front View of the Special Bearing Test Machine Being Employed to Investigate the Possibility of Conserving the Strategic Metals in Bearings

Passenger Car Axles—The passenger car axle research of the association to be continued in 1943 was started in 1937 and has for its purpose the determination of means for reducing progressive cracks and fractures in passenger car axles. In this investigation, which is being carried out at the laboratory of the Timken Roller Bearing Company at Canton, Ohio, extensive fatigue tests of full size and miniature size axles have already been made in special testing machines to study the effect of design, including relief groves; and of metallurgy, including flame-hardened and cold-rolled wheel seats.

Joint Investigations

Rail Gage and Wheel Contour—In the following, brief reference is made to the joint investigations to be carried out in 1943 by the Mechanical and Engineering divisions. One of these investigations, a new one, has to do with the relation of rail gage and wheel contour. In this investigation, it is proposed to conduct a number of high-speed runs with modern types of passenger equipment, employing the association's electrical accelerometer equipment to determine the lateral and vertical oscillations of the cars. For these tests, which will incorporate wheels with different contours, comparative test sections of track have already been set up on the

---

* A detailed description of these tests and of the results being found appeared in the *Railway Age* of August 1, 1942, page 173.

Missouri Pacific, with gages of 4 ft. 8½ in., 4 ft. 8⅜ in., and 4 ft. 8¼ in.

Locomotive Counterbalance Tests—The locomotive counterbalance tests to be continued during the present year were begun late in 1940 to determine the most suitable methods of counterbalancing steam locomotives, with due consideration of the effect of the counterbalance on both the locomotives and the track structure. Using the association's electrical strain measuring equipment at a section of test track on the Chicago & North Western, measurements have been made on a total of 15 locomotives of the Illinois Central, the Soo Line, the Santa Fe and the North Western, involving a total of 843 test runs and 9,151 test train miles. Three of the locomotives were tested with five or six different arrangements of counterbalancing, with reciprocating balance varied in successive series of tests from 50 per cent of the reciprocating weight down to a revolving balance only. Other tests included comparisons with conventional and light-weight revolving and reciprocating parts. The various measurements made have included vertical and lateral blows sustained by the track; vertical, lateral and longitudinal oscillations of the locomotives; stresses in the main pedestal jaws; main rod thrust; change in spring pressure transmitted to main drivers, and drawbar pull—all in relation to crank pin position.

The field testing program has been completed and analysis of the data and preparation of the report are expected to be completed this year. The investigation has shown that much improvement can be made in the balancing of many existing locomotives, in addition to furnishing data for correct new design.

Wheel Load and Wheel Diameter—The study of the relation of wheel load to wheel diameter, which has been under way at the University of Illinois since 1941, was instituted because of the evident need for determining the effect upon rail and wheel damage of various loads on wheels of various diameters, especially as exemplified by heavily loaded tender wheels. In this investigation, employing a rolling-load machine, tests have and continue to be made with wheels of 33-in., 40-in. and 50-in. diameter, with loads up to 75,000 lb.

Wheel Flat Spot Investigation—A preliminary test was made on the New York, New Haven & Hartford in 1942 to determine the impact effects produced by flat spots 2½ in. long on a heavily loaded coal car wheel moving at speeds up to 60 m. p. h. During the present year it is proposed to extend this work to include various wheel loads and lengths of flat spots, measuring the impact produced with the association's electrical strain measuring equipment.

Corrosion from Brine Drippings—This is a continuation of work to determine means of reducing the corrosion of the steel in the track structure and bridges, as well as in refrigerator cars, resulting from the brine drippings from refrigerator cars. As the result of tests conducted in the laboratories of the Santa Fe, the Denver & Rio Grande, the Milwaukee and the Chesapeake & Ohio for the association, considerable progress has been made toward determining an inhibitor which can be added to the brine to retard its corrosive effects. During 1943, it is proposed to develop a suitable filter arrangement for attachment to cars, so that the inhibitor can be added to the brine drippings after they leave the car interior.

To carry out the 1943 program of research outlined in the foregoing, the A. A. R. has appropriated a total of $181,048 including $82,506 for Mechanical Division projects and $98,542 for Engineering Division projects. This represents an increase of $6,781 over the actual A. A. R. expenditure of $174,267 for both Engineering and Mechanical Division research projects in 1942. How the monies appropriated in 1942 were expended, and how the appropriation for 1943 is apportioned among the separate projects, are shown in the following table:

A. A. R. Appropriations for Research in 1942 and 1943

ENGINEERING DIVISION	Expenditure for 1942	Budget for 1943
Transverse Fissure Investigation	$7,500*	$6,000*
Rail Investigations Committee	6,080	6,072
Service Tests of Joint Bars	2,900	2,980
Rolling-Load Tests of Joint Bars	5,000	3,000
Cause of Shelly Spots and Head Checks	1,000	7,000
Investigation of Web Stresses	....	5,000
Study of Engine Burns	....	1,000
Investigation of Stresses in Tie Plates	....	2,500
Bolt Tension Tests	....	1,500
Corrosion From Brine Drippings	....	1,000
Welding of Manganese Frogs	600	1,000
Locomotive Counterbalancing Tests	20,000	10,000
Relation of Wheel Load to Wheel Diameter	5,000	5,000
Rail Gage and Wheel Contour	3,000	10,000
Flat Spot Investigation	2,000	5,000
Impact Investigation	10,000	14,300
Fatigue Tests of Structural Welds	5,000	5,000
Tests of Asphalt and Pitch	550	....
Electrolysis Study	12,600	2,000
Research Office	....	10,090
Boiler Feedwater Study	....	100
Total Engineering	$81,230	$98,542
MECHANICAL DIVISION		
Mechanical Engineers Office	$12,310	$19,540
Passenger Car Axle Research	23,000	11,400
Crank Pin Research	7,500	14,400
Locomotive Counterbalance Tests	30,181	15,000
Relation Between Track and Equipment	2,000	10,000
Journal Bearing Development	6,542	4,200
Test Rack for Geared Hand Brakes	....	620
Other items of a test nature, not classed as research work:		
Draft Gear Tests	$7,000	$5,300
Power Brake Investigation	2,046	2,046
Welded Couplers, Coupler Yokes, and Side Frames	2,458	....
Total Mechanical	$93,037	$82,506
Grand Total Engineering and Mechanical	$174,267	$181,048

---

* A. A. R. Contribution is matched each year by rail manufacturers.

As during 1942, the 1943 research program will be conducted by contract arrangement with various railways, universities and industrial laboratories, or directly by the research staff of the A.A.R., with headquarters in Chicago, operating under the general direction of committees of the Mechanical and Engineering divisions, supervised by the mechanical engineer and research engineer, respectively, of these divisions.

The equipment available to the research staff for carrying out its work includes the following:

Equipment Available for Research Program

Electrical measuring equipment:	
4	12-element oscillographs
1	6-element oscillograph
4	electronic oscillators
2	gasoline-engine-driven 2.5-kw. electric generators
2	motor-generator sets
4	12-element bridge control units
1	6-element bridge control units
1	6-element accelerometer control unit, power supply and amplifier
78	2-in. gage length electromagnetic gages
12	4-in. gage length electromagnetic gages
6	solenoid depression gages
Rolling-load machines:	
1	33-in. stroke, 0 to 60,000-lb. wheel load
1	12-in. stroke, 0 to 75,000-lb. wheel load
1	12-in. stroke, 0 to 75,000-lb. wheel load*
2	7-in. stroke, 0 to 75,000-lb. wheel load*
Other equipment:	
2	axle fatigue testing machines
1	27,000-lb. tup draft gear testing machine
1	test rack for geared hand brakes

---

* Owned jointly with rail manufacturers.

Ordinary types of testing equipment for tensile, compression, impact, fatigue and hardness tests; photomicrographic equipment; chemical test equipment, etc., are available for association work at the various railway, university and industrial laboratories. Therefore, it has been the policy to acquire only such special types of equipment as are not already available elsewhere.

"Troop Train"

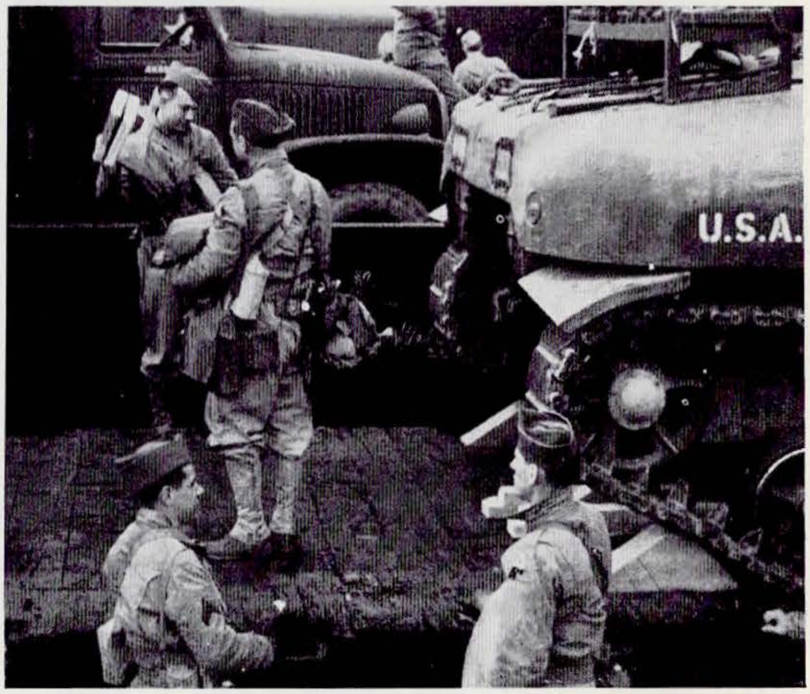
THE above is the title of a "short" film issued by the Office of War Information. It will probably be shown in your local movie house—but maybe you'll want to speak to the manager about it, just to make sure. He can get free use of the film, and, photographically, it is one of the best ones yet made showing war activity on the home front, as the "stills" here testify. Any movie house which exhibits it will be doing its customers a favor.

Most people probably still think—because our Army has so many motor vehicles—that it moves itself. But it does so only where the hop is a short one, or where railroads are not available. Where the trek is long, the Army—trucks, jeeps, tanks, soldiers and all—ride the trains. This isn't news to railroad men, but it may be to their neighbors—and it is about time that railroads and railroaders got some kind of effective public recognition like this film, for the *direct contribution* they are making to fighting this war.

The film portrays the loading of all kinds of military equipment on trains; shows soldiers making themselves at home in sleepers; and getting their mess kit rations. Beyond all this, there are in this film some of the best movie shots of trains in motion—and from all angles—that the cinema people have ever yet produced.

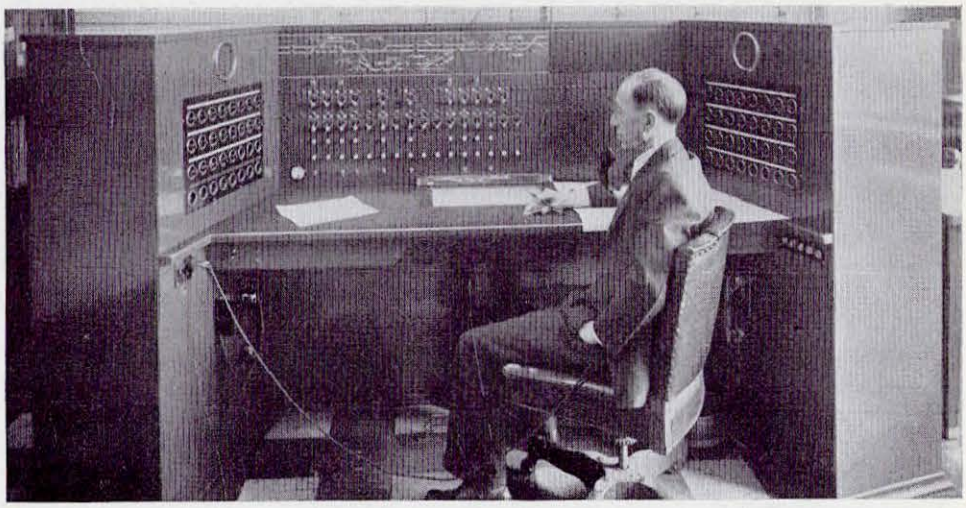
It is to be hoped other similar educational Army transportation movies may be in the OWI works—because, up to now, most of their pictures have featured planes, jeeps, landing barges, dog sleds, skis; in fact, the *unusual* and incidental transportation has got all the attention, while the old-reliable has been overlooked.

The sound-track commentary on the "Troop Train" film is an inept job, composed by someone unlettered in railroad lore. But aside from that minor impediment, the film is excellent. You will enjoy it, and so will your non-railroad friends.



The Bessemer & Lake Erie Installs Centralized Traffic Control

Includes 88 miles of track on 43 miles of road; four junctions; four ends of double track—Modern coded track circuits used



C. T. C. Panel in the Center with the Telephone Train Dispatching Ringing Keys Mounted in the Wing Section of the Cabinet

TO EXPEDITE train movements and improve safety, the Bessemer & Lake Erie has installed centralized traffic control on 88.2 track miles of single and double track between Meadville Junction, Pa., and Filer, a line distance of 42.9 miles. This territory is one of the bottlenecks on the railroad, which extends between North Bessemer, Pa., in the Pittsburgh area, and Conneaut, Ohio, and Erie, Pa., on Lake Erie.

At North Bessemer, the Bessemer & Lake Erie connects with the Union Railroad which serves numerous steel and other industries. At Conneaut, the Bessemer & Lake Erie has large docks; it also has important interchange facilities near Erie, Pa. The traffic consists primarily of iron ore southbound and of coal and finished steel products northbound. A large yard is located at Albion, Pa., between which point and Conneaut, 15 miles, as well as between Erie and Albion, 25 miles, the operations are in the nature of transfer moves. Southbound road trains are made up at Albion, and northbound road trains are broken up at this yard. Each through freight train is handled by two locomotives, one at the head end and another at the rear, just ahead of the caboose. The grades between Albion and KO Junction are such that southbound trains handle more tonnage between these points than between KO and North Bessemer. For this reason, southbound trains set off cars at KO, and other crews starting from Greenville move this overflow from KO to North Bessemer.

During the season of open navigation on the Great Lakes, about 12 freight trains are operated in each direction daily between Albion and KO. On this territory the line is double track, and right-hand running is standard practice. This is true also of the territory between Filer and North Bessemer, 66.4 miles.

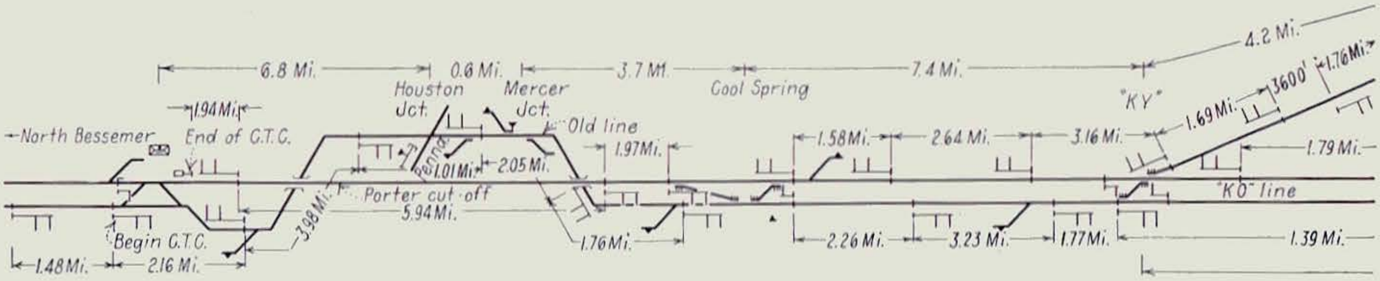
Special Circumstances Between KO and Filer

Between KO and KY the original single-track line of the B. & L. E. passes through the business section of Greenville, Pa., with steep grades into and out of the valley of the Shenango river. The alternate double-track "high" line between KO and KY is shorter and has lighter grades. The old line through Greenville is retained to serve not only the industries in this city but also interchange connections on this old line with the New York Central at Osgood (OW) and with the Pennsylvania and the Erie at Shenango. Certain freight trains in both directions, which have cars to be set out or picked up at connections, are operated via the old line through Greenville in addition to one passenger train in each direction daily. An interchange and storage yard is located between Greenville station and Shenango, two main tracks being provided in this section, which is about 1.9 miles long. Between Shenango and KY, and also between KO and Greenville, the old main line is single track.

Junctions Involved

On the double-track high line between KX South and KY, the northward track is signaled for northbound train movements only, but the other track is signaled for train movements in either direction. This permits the northward track to be used for storage during the period of closed navigation. On the sections of double track between KX North and Meadville Junction, as well as between KY and Cool Spring, each of the two tracks is signaled for one direction only. Thus of the 88.2 track miles included within the limits of the project, 38.4 miles of track is signaled for either direction and 49.8 miles for one direction only.

Previously, the single switch, crossover and signals at KO Junction were operated by a mechanical interlocking. This plant was removed, and power switch machines and color-light searchlight signals were installed as a part of the C. T. C. system. At OW, on the old line between KO and Greenville, the switch leading to an interchange connection with the New York Central had previously been equipped with a hand-throw stand. A power switch



Track and Signal Plan of the Centralized Traffic Control

machine and signals were installed at this switch as a part of the C. T. C. system.

The switch at the south end of the 1.9 miles of double track main line in Greenville is operated as a part of the Shenango interlocking, which also protects the crossing with the Erie. The switch at the north end of the double track at Greenville station is equipped with a hand-throw stand, which is operated by an operator at GV.

Previously, the two main tracks over the Osgood viaduct were gauntlet, an arrangement which was objectionable because of the eccentric loading on the steel structure. For this reason, as a part of this improvement, one of the gauntlet tracks was removed, and the remaining single track was centered on the structure. This change introduced a single switch at each end of the double track, power switch machines and signals being installed as a part of the C. T. C. system.

The switches and crossovers at KY and at Cool Spring were formerly operated by hand-throw stands, but are now equipped with power switch machines and signals, as a part of the C. T. C. system. At Filer, the hand-throw stands on the two crossovers are lined by the operator on duty at this office.

Thus this C. T. C. project involves four junctions of single track and double track, each including a single switch, except at Shenango where a crossover and derails are involved, and four such junctions, two of which include a single switch and a crossover while the others include two crossovers. A peculiarity of this project is that no passing tracks as such are involved, but, on the other hand, nine junctions are included. In normal operations, the freight trains are of equal importance so that there is no occasion to run one around another. Furthermore, the sections of single track are so short that there are no occasions for opposing moves. Therefore no passing tracks are required.

Aspects of Semi-Automatic Signals

The signals are of the searchlight type with 10 volt 13 + 3.5 watt lamps. Each semi-automatic C. T. C. controlled high signal has two units which display an aspect of red-over-red for Stop. If either lamp is burned out, a single red light is likewise a Stop aspect, or if both lamps are burned out, this is equivalent to a Stop aspect.

The turnouts and crossovers are No. 16, good for freight train speeds of 30 m. p. h. When a train is to make a diverging move, a Medium-Clear aspect, red-over-green, is displayed. When a train is to close up on another train, the Restricting aspect, red-over-yellow, is displayed. When the immediate block is unoccupied, but the next signal is displaying its most restrictive aspect, a signal displays the Approach aspect, yellow-over-red. The dwarf semi-automatic signals each have one unit only, and display red for Stop, yellow for Restricting and Green for Clear.

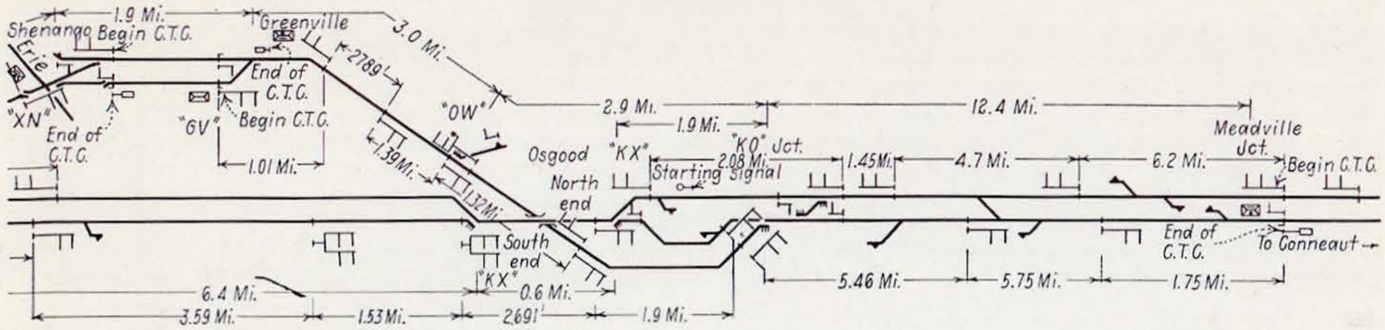
Non-Stop Automatic Block Signals

An outstanding feature of this project is that the intermediate automatic block signals do not display the Stop-and-Proceed aspect, A. A. R. Rule 291; rather the most restrictive aspect of these signals is red-over-yellow, Restricting, which directs a train to proceed at restricted speed, no stop being required at the signal. When proceeding at restricted speed, enginemen are required to watch for broken rails, misplaced switches and trains or other obstructions. In the majority of instances the train ahead clears the block or if a switch is open, it is closed before the train operating under the Restricting aspect arrives; therefore no stop is required. Thus this practice of using the Restricting aspect, rather than the Stop-and-Proceed, saves numerous unnecessary train stops, a consideration which is highly important with heavy freight trains.

On these intermediate automatic block signals, the upper "arm" is a searchlight signal unit capable of displaying red, yellow or green. The lower "arm" is a "one-color" lamp body in which the lamp is extinguished except when the Restricting aspect is to be displayed, in which instance a yellow light in this lower "arm" under a red light in the upper "arm" constitutes the Restricting aspect. Otherwise the lamp in this lower "arm" is extinguished while the upper "arm" displays the conventional aspects of green for Clear and yellow for Approach.

On the automatic block signals which serve also as "distant" signals in approach to home semi-automatic signals at the junctions, both the upper and the lower "arms" are searchlight operative units. Such signals display the red-over-yellow Restricting aspect as ex-

The Signals Are of the New Searchlight Type



Territory Between Filer and Meadville Junction

plained above; they also display the yellow-over-green Approach Medium aspect when the home signal displays the red-over-green Medium aspect to direct a train to use a diverging route over a crossover or turnout. The use of the Approach-Medium aspect on the distant signal permits an engineman to bring his train up to and through the turnouts at the speed for which they were designed, whereas if the ordinary Approach aspect were used, the engineman, according to rule, would be required to reduce speed at the distant signal and approach the home signal prepared to stop. The circumstances with reference to weights and lengths of trains, grades and air brake operations on the Bessemer are such that if an engineman prepares to stop his train, the stop, in most instances, must be made. The practice of providing the Approach-Medium aspects on the distant signals is, therefore, the means of eliminating numerous unnecessary train stops.

Electro-Pneumatic Switch Machines

The power switch machines on this project are of the electro-pneumatic type with dual control levers so that they can be operated by hand when special switching movements are being made. Electro-pneumatic switch machines were chosen by the B. & L. E. for this project in preference to electric machines for several reasons. The rail is of either 152-lb. or 130-lb. section, and the switch points on the No. 16 turnouts are 33 ft. long. The electro-pneumatic machines move these heavy switch points with sufficient snap to crush ice, chunks of coal or twigs which may be fouling the points. Regardless of requests, explanations and rules to the effect that sand shall not be used through power switches, sand must be used under certain circumstances when accelerating heavy trains. Unless the sand deposit is very heavy, the electro-pneumatic machines will crush it and position the points properly.

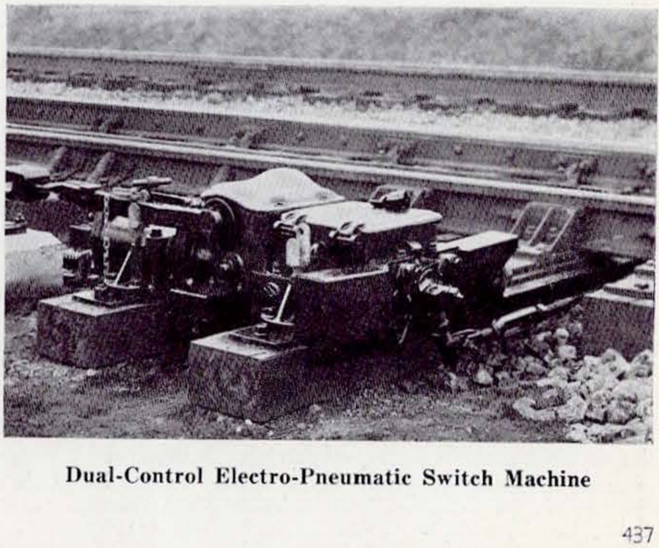
The power switch machines at the five single switches and four crossovers, as well as semi-automatic signals at the various junctions for authorizing train movements, are all controlled by a C. T. C. machine in the dispatcher's office at Greenville. Within the limits between KO and Cool Spring, inclusive, the controls of power switches and semi-automatic signals are effected by coded control from the dispatcher's office, using a two-wire line circuit which also returns the indications of switch position, signal aspects and track occupancy to the C. T. C. machine.

The C. T. C. control machine at Greenville includes an automatic train graph which records the passing of trains at the OS switch detector circuits at the various switches. Each midnight this record sheet is torn off and attached to the train sheet on which a record is kept in the usual manner of train movements on other than the C. T. C. territory.

Traffic Direction Control and Locking

The direction of traffic between Greenville and OW, between OW and KO, and between KX south and KY on the southward track, is controlled entirely from the C. T. C. machine at Greenville, and the operators at Filer and XN, respectively. Where joint traffic control is in effect, the traffic levers at each end of the block must correspond before a signal can be cleared to permit a train to enter the block.

A traffic-direction lever and a set of indication lamps apply for each section of track which is signaled for train movements in either direction, as for example on the single track between OW and KO. When traffic is to be established northward, for example, the traffic lever for this section is thrown to the left, which positions traffic control relays at the field stations and causes a blue lamp to be lighted in an arrow pointing north on the diagram between the symbols representing Greenville and OW. This lamp remains lighted as long as the traffic lever remains in the left position, and in the meantime, the southward station-leaving semi-automatic signal at OW cannot be cleared, even if the dispatcher attempts to control it. After the northward station-leaving signal at Greenville has been cleared and accepted and passed by a train, a red lamp below the blue lamp is lighted to indicate that the block between Greenville and OW is occupied. This lamp remains lighted until the northbound train, as well as any following trains, has passed beyond OW. In the meantime, traffic direction cannot be re-



Dual-Control Electro-Pneumatic Switch Machine

versed, even though the dispatcher might attempt to do so. When traffic direction is thus established northward for example, and a leading train has passed the intermediate signal, the station-leaving signal at Greenville can be controlled to display a Proceed aspect for a following train, but under no circumstances can the southward station-leaving signals at OW be cleared to permit an opposing southbound train to enter the block between Greenville and OW until all northward trains in this block have passed beyond OW.

Telephone Communication

On each side of the control panel on the C. T. C. machine, there is a section of cabinet which includes the sending keys for the selectors of the telephone train dispatching circuit for the territories north and south of the C. T. C. territory. Thus the dispatcher has within reach all the facilities for authorizing trains on his entire territory.

The two line wires for the C. T. C. line coding system are used also for a telephone circuit connecting telephones in the instrument houses at the various switch locations. This telephone equipment is used by the signal maintenance forces when communicating with the dispatchers or when communication is required between two maintainers at different locations. When the dispatcher wants to call a maintainer, he sends out a control code which causes a lamp to be lighted on the track side of the instrument house or houses, and when a maintainer sees such a light, he answers the nearest telephone.

Modern Coded Track Circuits

An important feature of this project is that a modern form of d-c. coded track circuit equipment is used, by means of which the local field controls of signals are accomplished entirely by circuits in the rails, thereby obviating the need for line-wire control circuits. Track circuit code at the rate of 180 per minute establishes control for the Clear aspect; 120 code for the Approach-Medium aspect and 75 code for the Approach aspect. Absence of code or improperly applied steady energy results in the display of the most restrictive aspect.

Other than on the traffic-direction sections, as previously discussed, the track circuits are normally energized by code which feeds in the direction opposite to the direction of train operation. The signal lamps are normally lighted in double-track territory and are normally extinguished on single track. Approach indications in double-track territory are secured by means of reverse code, which feeds in the same direction as the trains operate. The pulsations of this reverse code are spaced in the "off" periods between the pulsations of the signal control code. Time locking rather than approach locking is used, so that no reverse coding or line wire circuits are required for locking purposes. The track-occupancy indications in single-track territory are controlled to indicate for a station-to-station block as a whole so that no line wires are required for extensions of track-occupancy controls from intermediate track circuits to field coding stations.

As a result of the installation of this C. T. C. system, train movements throughout the entire section between Meadville Junction and Filer, except between Greenville and Shenango, are now authorized by signal indication so that train orders are no longer required for this purpose. By means of the track-occupancy indications on the control machine, the dispatcher is informed of the location of and progress being made by every train. With this minute-to-minute information, he can control the signals to co-ordinate train movements most efficiently, whereas previously train orders could not be changed soon enough to obviate delays at the various junctions and ends of double track. In addition, the signaling provides safety protection against head-on and rear end collision, as well as protection to check the positions of main line switches, all of which contributes to confidence on the part of enginemen so that the trains are operated at the maximum permissible speeds for a greater percentage of the time.

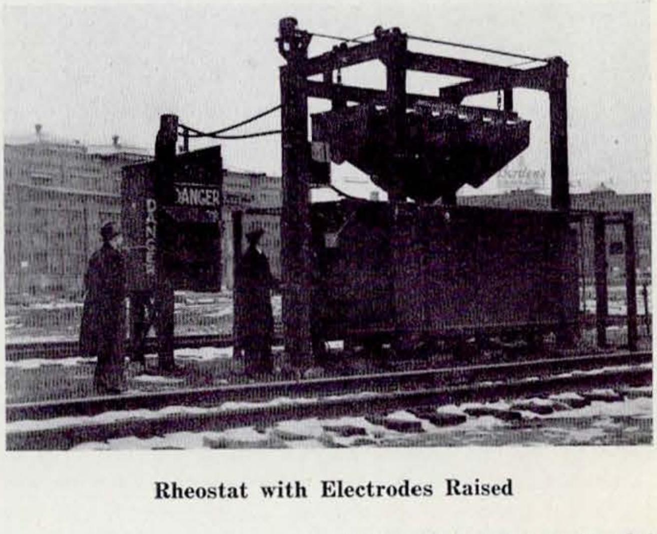
This centralized traffic control project was planned and installed under the jurisdiction of F. R. Layng, chief engineer, and under the immediate supervision of G. R. Pflasterer, signal engineer. The major items of material as well as the detail circuit plans were furnished by the Union Switch & Signal Company, which also handled the field construction with the exception of the pole line work, which was done by railroad forces.

Measuring Output of Diesel Engines

THE water rheostat shown in the illustration was devised by the New York, New Haven & Hartford and is used at its Van Nest Shops for testing the output of Diesel engines on locomotives. It has more than sufficient capacity for continuously carrying full load output on a 1,000-hp. engine. It is now used for switchers and will be used for road locomotives.

The rheostat consists of a steel tank 6 ft. by 12 ft. by 5 ft. 4 in. deep, filled with a solution of sodium carbonate, and a group of seven V-shaped electrodes which may be lowered into the solution. The electrodes and tank are insulated from each other and from ground and the engine is loaded by connecting the terminals of the generator, respectively, to the electrodes and tank. After the engine and generator are brought up to operating temperatures, the output of the generator is measured on electric meters and a maximum pressure indicator, an exhaust-gas pyrometer and thermocouples are used to check Diesel-engine cylinder conditions. During tests, settings are also made on relays and load control devices.

More detailed information on the rheostat is published in the March issue of "Railway Mechanical Engineer."



Rheostat with Electrodes Raised

WPB Bungling of Scrap Threatens Railroad Steel Supply

Head of War Materials, Inc., says that present scrap production presages a serious forthcoming steel shortage

EVIDENCE indicating neglect and bungling by the War Production Board in scrap production that is likely to cause an even more serious shortage of scrap for steel making this year than occurred temporarily last year, and further jeopardize the chances of the railroads obtaining their necessary requirements of new steel, was brought to light in a report which B. C. Moise, president of War Materials, Inc., made to its directors on February 23.

Although created in August, 1942, at the request of Donald Nelson, chairman of WPB, to augment the supply of scrap in the country by financing and supervising the demolition of structures containing scrap which cannot be produced at the prices prescribed by OPA (Office of Price Administration), this 500 million dollar subsidiary of the Reconstruction Finance Corporation has been the subject of a series of directives from WPB since its organization which Mr. Moise contends have not only kept it from producing more than 9,000 tons of scrap during the six months of its life and all but nullified its usefulness, but have also recently put it in the position of having to pay taxpayers' money to contractors for *not* producing scrap by regulations requiring it to liquidate contracts previously made in most states.

At the same time, according to Mr. Moise, who succeeded to the presidency of War Materials, Inc., at the request of WPB when the company was being reorganized last October, nothing, not even the substantially increased pig iron making capacity of the country, has occurred to reduce the ultimate need for every pound of scrap that can be obtained in this country. The present supply of scrap created by the scrap drives in 1942, he said, can be regarded only as temporary and is not and will not be replenished rapidly enough under present arrangements to produce the quantity of scrap which will be required to meet the new goals which have been set for steel production in 1943.

He added that war-time steel production does not, as some believe, produce as much scrap as peace-time production, that much of the scrap collected last year is non-recurring, that scrap from civilian sources is being produced at a diminishing rate with the reduction in new steel available for civilian uses and that the amount of scrap which is being returned to this country from the battle fields of Europe is infinitesimal.

In his first public statement made since he became president of WMI, Mr. Moise, who was formerly senior vice-president of the National Tube Company and who was consultant in the Iron and Steel Branch of WPB at the time plans were made for increased pig iron and coke production in the country, stated that WMI is well organized at present to perform its original functions in the furtherance of the war effort and with maximum economy to the taxpayers, but will not countenance any further expenditures unless it can meet war needs for scrap in reasonable volume. He said that WPB should take the responsibility for dissolving the enterprise or permit it to do the vital war job for which it was created. If something more is not done than has already been done by WPB to obtain the high-cost scrap, he warned, this country will be confronted with the sorry situation of having too little scrap too late. Mr. Moise's report on the scrap situation and the conditions confronting the private enterprise which was organized to assure adequate supplies of scrap for war purposes, which was released February 23, is as follows:

Mr. Moise's Report

"War Materials, Inc., is now in a critical situation and I deem it necessary, as president of the company and as an American citizen, to give the Board of Directors a brief statement of the facts causing that situation which I believe to be a serious danger to the war effort.

"Approximately 40 per cent of every ton of steel manufactured is produced from iron and steel scrap. Everybody knows that to win the war this nation requires all the steel it can produce. In August, 1942, Donald M. Nelson, chairman of the War Production Board, wrote to Secretary of Commerce Jesse H. Jones, asking that Metals Reserve Company (a subsidiary of the Reconstruction Finance Corporation) form a corporation with 500 million dollars capital, the primary object of which was to recover iron and steel scrap which could be produced only at a cost in excess of its selling value and emphasizing the urgent necessity for the collection of not less than 5 million tons of such iron and steel scrap. Jesse H. Jones promptly replied that this would be done and in that same month of August, 1942, War Materials, Inc., was formed. Its office was opened in Pittsburgh in September.

"In October, 1942, Mr. Nelson wrote a letter to Mr. Jones, taking away all initiative in the collection

B. C. Moise
President, War Materials, Inc.

of scrap from War Materials, Inc., and lodging the entire power to initiate such projects in the Conservation Division (now known as the Salvage Division) of WPB. The October directive required a considerable re-organization of War Materials, Inc., to meet the limiting conditions placed upon it, and such re-organization was commenced October 27, 1942.

"While the new organization was being formed, War Materials, Inc., proceeded with work on the projects given it by WPB, clearing up legal questions, establishing specifications, advertising for bids and as fast as possible letting contracts for salvage work at the lowest cost consistent with the nature of the projects selected for it by WPB. In November, 1942, WPB set a limit of $71 per gross ton for scrap recovered, beyond which War Materials, Inc., was not to go in the recovery of scrap. This limitation made it impossible to execute contracts for a number of these projects because after War Materials, Inc., had performed all work up to the point of awarding contracts, the lowest bids were found to be above the $71 limit. In December, 1942, WPB fixed $40 per gross ton of scrap recovered as the utmost that War Materials, Inc., could pay and, later, WPB made this order retroactive.

Cancels Scrapping Jobs Already Under Way

"WPB at all times selected scrap projects for War Materials, Inc., without apparent regard to the actual cost of recovering the scrap. Most of the projects selected were street car rails. About 60 per cent of the total cost of recovering street car rails lies in repaving the openings made in the streets by removing the rails. Since these rail removal projects could not be executed for $40 per gross ton, the December directive nullified about 85 per cent of all projects then being worked upon. WPB's own efforts in initiating these projects and the large amount of work devoted to them by War Materials, Inc., were wasted. In January, 1943, Mr. Nelson issued a new directive stating that for the time being, WPB would not initiate any such projects in some 30 states. This directive eliminated all but four of the southern and southwestern states where work can be done in the winter months. Mr. Nelson added that the scrap situation was "more comfortable" and that unfortunately WPB was unable to state how much scrap would be required from War Materials, Inc., but that War Materials, Inc., might be asked to move an unimportant amount of scrap during the first six months of 1943.

"To the five previous directives WPB added a sixth directive in February, which provides for the cancellations of contracts already executed, even if payments have to made to the contractors to induce such cancellation. This means that War Materials, Inc., is now to pay government money for the purpose of *not* getting scrap instead of for the purpose of obtaining it. It also means the reduction of War Materials, Inc., to a standby organization with a skeleton staff continuing on the payroll, to spend the taxpayers' money for nothing. If and when WPB recognizes the need for scrap, such skeleton organization will be of no value.

"I worked in the steel business for about fifty years before my retirement from active business two years ago, and I am thoroughly familiar with the importance of scrap in the manufacture of steel. Since coming to War Materials, Inc., it has been my particular job to learn something of the current scrap situation. I can definitely state that nothing has occurred between August, 1942, and the present time to reduce the ultimate need for every pound of scrap, including scrap costing more than OPA ceiling prices, that can be obtained in this country.

Popular Scrap Drive a One-Time Source

"The 1942 scrap drive by the American people with the help of the newspapers resulted in a large recovery of scrap which had been accumulating for years. It also anticipated to a large extent the normal collections of scrap in the months that are to come. The present supply of scrap due to the 1942 scrap drive is temporary. It has no pertinence in determining how much scrap can be collected in the future.

"The sources of scrap in this country are of necessity diminishing progressively as the war continues. This is so because purchased scrap is the waste from replacements of steel used domestically, and it is common knowledge that very little steel is or will be available for civilian use and that the steel used for war purposes goes into ships, tanks, guns, airplanes, shells, etc., intended for use outside of the country. Scrap from ships and cargoes sunk by submarines cannot be recovered. Scrap from war material destroyed in combat cannot be salvaged in any quantity under war conditions.

"War Materials, Inc., has created, after three months of intensive work, an efficient organization fully capable of locating and recovering scrap in quantity. WPB has given War Materials, Inc., no volume of scrap projects on which to work. Even if War Materials, Inc., is now given the green light to recover scrap on its own initiative, scrap in quantity cannot be delivered for at least five months. WPB insists upon retaining the exclusive right to initiate scrap projects for War Materials, Inc., yet has failed completely in so doing. It has only given War Materials, Inc., about 140,000 tons of scrap recovery projects, which is a small fraction of the 5 million ton program which War Materials, Inc., at the request of WPB, was created and has been organized to fulfill.

Present Stalemate Wastes Public Funds

"Any business concern established to recover 5 million tons of scrap, and organized accordingly, would go into bankruptcy immediately with such a trickle of business. No government body should waste the taxpayers' money. It is our view that the government must receive a fair return for all money it spends. War Materials, Inc., will not countenance any further expenditures unless it can meet war needs for scrap in reasonable volume. It is idle to feed a trickle of scrap projects to a skeleton organization. Either WPB should take the responsibility for dissolving War Materials, Inc., or it should permit War Materials, Inc., to do the vital war job for which it was created. The situation is too serious for further delay.

"WPB must answer which is better—to have an ample supply of scrap (so far as that is possible) when needed, or to have less than enough and no means of getting more for months to come."

"The only stable principle of government is equality according to proportion, and for every man to enjoy his own."—Aristotle.

"In choice of committees for ripening business, for the counsel, it is better to choose indifferent persons, than to make an indifferency by putting in those that are strong on both sides."—Bacon.

Railroads-in-War News

Not Enough Power or Open Tops for 1943

ODT warns priorities may be forced unless WPB eases material allotments

In a statement released February 24 the Office of Defense Transportation has uttered a blunt warning that "tight situations" in the supply of open top cars and locomotives are likely to appear more frequently, and to last longer, in 1943 than last year. "Serious delays" in the movement of essential bulk commodities are likely to result from this situation, the ODT pointed out.

A number of reasons were given as the basis for this prediction of more severe car and locomotive stringencies. Increases both in the volume of freight to be moved in open top cars and in the distances it must be hauled will be primarily responsible for the expected shortages, but other factors also are involved.

Remarking that "considerably more than half of all freight moved by the railroads is carried in open top cars," the ODT estimated that open top carloadings, exclusive of ore in ore cars, will total 19,678,000 cars in 1943, compared with 19,297,000 in 1942. The tonnage included in these carloadings is expected to total 1,003,485,000 net tons, compared with 981,495,000 in 1942.

"Loadings and tonnage of most commodities moving in open top cars are expected to rise in 1943," the statement continued. "The only substantial decline anticipated is in sand, gravel, and stone, reflecting the near-completion of war construction programs. But that decline is more than offset by estimated increases in coal movements alone. Material increases are expected also in loadings of iron ore and iron and steel manufactures."

The relatively small increases in open top carloadings and tonnage estimated for 1943 may be misleading, the ODT explained, because such figures only partially indicate the size of the additional load this year's traffic will impose on the available car and motive power supply. Many shipments in open top cars, for example, will have to be moved over longer distances, tying up cars and locomotives for longer periods of time.

The supply of coal cars particularly will be affected by such increased lengths of haul, the statement adds. "There has been a constantly increasing length of rail haul on bituminous coal, brought about by reduction in the normal movement by water and by increases in coal consumption resulting from conversion from oil and gas to coal. The rail haul for coal has been lengthened also by reason of the fact that, because of more intensive industrial activity, coal now has to be shipped from a distance to make up deficiencies in certain areas whose requirements formerly were met entirely by the production of nearby mines."

The ODT has estimated that an increase of 60,000,000 car miles in 1942 should be attributed to these circumstances. A further increase in 1943 over last year of at least 225,000,000 car miles is expected to result from the transportation of anthracite and bituminous coal alone, and longer rail hauls are anticipated on various other commodities.

It was said also that certain expected shifts in freight movement from less active traffic areas to regions of more concentrated traffic would tend to increase turnaround time for cars and locomotives, further straining the available equipment supply. At the same time, rubber and manpower shortages could be expected to cause shifting of a rising volume of freight from trucks to the railroads, while the supply of gondolas and flat cars available for civilian traffic will be further reduced by demands for an increasing number of such cars for military movements.

Another factor expected to affect the equipment supply adversely, the ODT pointed out, is the cumulative effect of heavy service on the equipment in use, necessitating an increasing number of withdrawals of cars and locomotives for overhaul and repair. An additional complication that will add to the time required for such work is the labor shortage facing many shops that already are working at maximum capacity.

Mentioning steps taken already to relieve the threatened car and locomotive stringencies, such as heavier loading of cars, reductions of empty movements and of cross-hauling, and spreading out seasonal movements in commodities like coal, the ODT then emphasized the probability that —unless additional new equipment construction is authorized by the War Production Board—it might become necessary to adopt "some system of freight priorities, in order to protect the production and movement of essential products." So far this year the WPB has authorized delivery to the railroads of 17,388 new hopper and gondola cars, according to the ODT statement, as well as 100 Diesel-electric switch engines, 36 Diesel-electric road locomotives and 250 steam locomotives.

Going into some detail about the expected increased demand for coal along the Eastern seaboard this year, the ODT indicated that a record-breaking all-rail movement can be accomplished "without difficulty," provided 70 per cent of the total is moved between April 1 and November

(Continued on page 443)

Coordinating Fight Reviewed by ODT

Eastman thinks much more can be done; says action "cannot long be delayed"

The Office of Defense Transportation, in a February 23 press release, presented an official review of discussions and controversies which have arisen in connection with pending proposals to limit railroads and truck lines to services that each is "best adapted" to perform. The release emphasized that no coordinating proposal had yet been approved for adoption, but it also carried ODT Director Eastman's warning that the disposition of the matter "cannot long be delayed."

Summarizing his stand on the controversial subject, Mr. Eastman had this to say: "I believe that much can and should be done to decrease long-haul truck operation and intra-terminal and short-haul rail operation during the present emergency, particularly in instances in which trucks can release a much larger number of railroad cars and needed locomotives for more efficient use. My chief concern is that in any such process the rights and interests of both the rail and truck industries and of the shipping public shall in some way be preserved, so that they may resume their normal operations without prejudice when normal times return. Otherwise, I have no fixed conclusions and shall be able to review the recommendations of my staff with an open mind."

The press release got under way with the assertion that the studies "looking to more efficient use of the nation's hard-pressed transportation facilities through improved coordination of railway and motor transport, begun several months ago, are being continued" by ODT "in cooperation with representatives of the two industries and the shipping public." Then came the statement that no proposal had been approved, followed by assurances from Director Eastman that none "will be adopted without careful examination or without full understanding between the ODT and the transportation industries and the shipping public."

The release then went on to say that Mr. Eastman had explained the purpose of the coordinating studies by citing "the prospect of further growth in the mountains of freight which must be moved with limited facilities." This makes necessary "careful exploration of all proposals for more complete use of the existing transportation plant." Chaos would have resulted "months ago" from present traffic loads and shortages of equipment, Mr. Eastman said, "if both rail and truck operating efficiency had not been increased many times." He concedes that much progress has been made in the field of rail-truck coordination, but nevertheless thinks that "much more improvement is possible."

A "major proposal" under consideration, as the release put it, "is the use generally of trucks for movements within terminal areas and for short hauls, and the utilization of the rails for longer hauls." To determine the possibilities, ODT has had traffic specialists in Boston, Mass., New York, Philadelphia, Pa., Cleveland, Ohio, Cincinnati, Atlanta, Ga., New Orleans, La., Chicago, St. Paul, Minn., Minneapolis, St. Louis, Mo., and Dallas, Tex. They have been studying the "utilization of facilities in general and rail-truck coordination in particular," reporting to ODT on conditions; and they "have assisted the carriers in effecting improvements in specific instances."

Also, advisory committees of shipper representatives were established "at all the large rail terminals in the country"; and these "for several months have been conducting studies of intra-terminal and short-haul operations and long-haul operations on which rail and truck movements are unbalanced in opposite directions." In the latter connection the release cited the situation between Chicago and the Twin Cities where there is a heavy flow by rail of wheat and other commodities into Chicago with an empty car movement back to the Twin Cities. Meanwhile, "trucks carry finished products from Chicago to the Twin Cities and return largely empty."

"Much the same situation," the release added, "exists in the utilization of transportation facilities for the movement of traffic between Chicago and such points as St. Louis and Omaha." Next is a reference to "a recent survey by an ODT joint committee" which revealed that "approximately 1,000 freight car days could be saved every day by the substitution of trucks for about 250 of the rail cars operating in short hauls within the Chicago switching district." The same condition, it is asserted, "exists in varying degree in every rail terminal in the country."

A specific example traces an intra-terminal rail movement which consumed eight car days, whereas "one ten-ton truck could perform this intra-terminal service in one or two days." The example is extended to suggest that in the eight days it was tied up on the intra-terminal movement, the car might have made a trip from Chicago to Buffalo, N. Y., or Pittsburgh, Pa., Cincinnati, or Detroit; or "possibly to New York." Conversely, any such long hauls by highway "would require the use of six ten-ton trucks—12 truck days, with one or two drivers per truck."

The coordinating proposals, it is stated, were submitted to carrier and shipper representatives "to obtain industry reaction and counter suggestions." And these "targets for discussion" have been "under concentrated fire from all quarters." Objections ODT has heard are set forth in the press release as follows: "Representatives of the carriers have objected to suggestions that any rail-truck coordination plan be administered uniformly on a nationwide basis. Truckers have expressed opposition to any rigid length-of-haul restrictions, while the railroads have objected to carrying freight, as agents of truckers, on a proposed ton-mile basis, insisting instead that freight diverted from trucks be moved at their regular tariffs."

Average L.c.l. Load Falls

The average load per car of l. c. l. freight carried by Class I railroads in December, 20,294 pounds, was a slight decrease from the November average of 20,704 pounds, the record to date, the Office of Defense Transportation announced February 19. The average per car remains above the 10-ton minimum prescribed by ODT General Order No. 1, however. The drop in the figures reported for December reflects in part the effect of a seasonal decline in shipments, it was said, but is to a larger extent the result of use for l. c. l. loading of cars that otherwise would have moved empty. This was particularly true of refrigerator cars on return movements to Florida, Texas, and West Coast points.

On short line and switching and terminal railroads the average l. c. l. load in December was 17,930 pounds, as compared with 17,646 pounds in November. The volume of merchandise freight handled by forwarding companies increased contra-seasonally in December as compared with November, the ODT pointed out. The average load per car decreased in this time, however. In December this figure for the forwarding companies was 41,477 pounds, as compared with 41,939 pounds in November.

Bus Curtailment Plans on File with ODT

Plans for emergency mileage curtailment by operators of fleets of buses and taxicabs throughout the Nation are now on file with the Office of Defense Transportation. They were submitted in response to Director Eastman's January 25 request that operators of ten or more rubber-borne vehicles prepare plans for 10, 20 and 30 per cent mileage cuts to prevent transportation "confusion or collapse" if gasoline or rubber shortages require.

The plans could be placed in effect on short notice, an ODT press release of February 23 said, adding that information regarding individual plans may be obtained locally from the individual operators.

New Canteen Opened in P. R. R.'s Broad Street Station

A U. S. O. canteen and lounge for servicemen was opened on February 15 on the Market street side of the main waiting room of the Pennsylvania's Broad street station. The new canteen equipped and furnished by the P. R. R. will be open 24 hours a day, with hostesses in attendance from 10 a. m. to 10 p. m. daily. Refreshments will be available at a minimum charge and facilities for lounging, writing and entertainment have been furnished. The Travelers Aid Society will operate the canteen as a U. S. O. facility and members of the Pennsylvania's Women's Aid will act as volunteer workers. This latter organization, composed of wives, daughters and sisters of P. R. R. men, was formed during the first World War to serve railroad employees in the armed forces and their families. After the war it became a permanent organization.

The P. R. R. also operates a U. S. O. canteen in its 30th Street station, Philadelphia, which has been in service for some time.

Dining Cars Won't Escape Food Rationing Program

Provisions for the application of the processed foods rationing program to "restaurants, hotels and other eating establishments"—the category embracing railroad dining cars—were announced February 24 by the Office of Price Administration.

As reported in *Railway Age* of January 23, page 256, allotments of the rationed products to "institutional users" will be based on the amounts used and the number of persons served in December, 1942, and will generally be equivalent to a maximum monthly allowance of about 0.6 ration point for each person served during December, a slightly more liberal allowance than has been provided for individuals using the War Ration Book 2. The difference is provided to cover the higher waste factor and fluctuations of patronage experienced by the institutional users, it was said.

Arrangements have been worked out for users of this class to register on forms provided for the purpose during the first ten days of March. Allotments under this program will be for the two months, March and April. At the same time new provisions for the allotment of sugar and coffee to institutional users are scheduled to go into effect. These commodities also will be made available on the basis of December, 1942, consumption, and the maximum allowances for the first 2-month period will be .03 pound of sugar and .013 pound of coffee per person served in December, these quantities being in most cases a reduction from amounts allowed under the former arrangement.

Car Plants Must Use Inventories

Action intended to require freight car builders to use their surplus inventory stocks and thereby reduce the volume of new material required was taken February 24 by the War Production Board in the form of Supplementary Limitation Order L-97-a-l, amended, a further revision of the April 4, 1942, order "freezing" car materials, which already had been liberalized to allow exchanges of materials in stock.

The order in its present form is intended not merely to permit, but to require, reductions of stocks of surplus parts. It is designed, the WPB states, to relieve situations where car purchasers specify accessories of different manufacture than those in stock, and directs the builder to substitute parts on hand, where they are interchangeable, for those specified by the purchaser.

"Emergency Deliveries" by Truck Can Burn Up Rubber

Motor carriers making "emergency deliveries" for the Army, Navy, Maritime Commission and War Shipping Administration will be permitted by an Office of Defense Transportation order to operate their trucks faster than the 35 m.p.h. national wartime speed limit, provided such trucks carry certificates of exemption and display pennants indicating that they are engaged in emergency service.

This order (ODT Exemption Order No. 23-2), announced February 21 by ODT Director Eastman, becomes effective March 1 for a trial period of 60 days. It was issued, the ODT announced, on the petition of the War Department and has the approval of Rubber Director Jeffers. During the trial period, it was added, the ODT will maintain a close check both on the degree of compliance and the effect on operating efficiency. It was emphasized that the exemption does not mean that the wartime speed limit is lifted for other vehicles, and "violations or abuses of the regulation, designed solely to speed up shipments of vital war materials, would make it necessary to rescind the exemption order."

N. & W.'s War Bond Campaign Shows Good Results

Employees of 17 departments and shops of the Norfolk & Western have signed up 100 per cent for the purchase of war bonds through the payroll savings plan, according to a summary released by L. C. Ayers, assistant general manager of the road, who acted as chairman of the system-wide campaign just concluded.

Of the road's 22,331 employees, 21,083, or 94.41 per cent, have allotted $331,237.46 to the purchase of war bonds, which is 8.27 per cent of the road's total payroll. More than 90 per cent of the employees of 12 additional departments and shops have assigned 10 per cent or more of the total payrolls of their departments to war bond purchases. A high record was also made by miscellaneous employees, such as signal maintainers, carpenters, and masons, on six divisions and at two terminals on the road. A total of 96.11 per cent of these employees have assigned 11.69 per cent of their total payroll to bond purchases.

Motive power employees at Wilcoe, W. Va., lead the 17 departments and shops which participated 100 per cent, having allotted 13.05 per cent of their earnings for this purpose.

B. & O. Starts New Advertising Campaign

A new Baltimore & Ohio advertising campaign has just been announced by the Richard A. Foley Advertising Agency, Philadelphia, Pa., which will embrace 336 newspapers in 219 cities and towns throughout the country in territory served by the B. & O.

The new series will feature cartoon illustrations by Hugh Hutton and will treat on such subjects as the enormous job the B. & O. and other American roads are doing in getting food supplies to the armed forces and civilians and how the railroads are "Keeping Fit" for war service through efficient maintenance programs. Other subjects to be covered will include equipment conservation, fuel transportation, railroad workers and their war jobs and transporting supplies from production centers to the fighting fronts.

Post-War Planning Bills

Representative Lynch, Democrat of New York, has introduced H.R. 1898, which would authorize appropriations of $25,000,000 and $75,000,000 to be used by the President for allotment to federal and state agencies respectively, for the preparation of plans "to facilitate and expedite the selection and inauguration during the post-war period of those public works and improvements that will assist in providing employment opportunities and demands for industrial products when the nation's men and machines have been demobilized."

Representative Rivers, Democrat of South Carolina, has introduced H.R. 1952 which would authorize a special series of War Savings Bonds for purchase solely by state and local governments desiring to accumulate funds for post-war public works.

Not Enough Power or Open Tops for 1943

(*Continued from page 441*)

15. A similar forecast with respect to the rail-water movement through New York harbor was qualified by a reference to the serious effect of possible manpower shortages on the capacity of transfer facilities at the waterfront.

New England anthracite requirements in 1943 are expected by the ODT to exceed "substantially" the 1942 deliveries of 7,093,000 tons. That region's bituminous coal requirements are estimated at 27,000,000 tons, compared with 1942 deliveries of 23,189,000 tons. More than half of the bituminous and nearly all of the anthracite for New England is expected to be handled in all-rail movements, the remainder moving by water from New York and, to the extent that colliers are available, from Hampton Roads.

More Railroads Reach 10 Per Cent in War Bond Sales

The list of railroads whose employees have authorized deductions from their pay for war bond purchases amounting to 10 per cent or more of the total payroll has been lengthened by the addition of the Donora Southern, Sabine & Neches Valley, DeKalb & Western, Pearl River Valley, Chattahoochee Valley, and Ashley, Drew & Northern, the War Savings Staff of the Treasury Department recently announced.

At the same time it was pointed out that several other railroads have obtained authorizations from employees for payroll deductions for this purpose exceeding 7 per cent of their total payrolls. These lines include the Central of Georgia, Fort Worth Belt, Union (Pittsburgh), Delray Connecting, Atlanta & West Point, Erie, Delaware, Lackawanna & Western, and Norfolk & Western.

As of December, 1942, the Treasury statement continues, more than 26 million workers have subscribed for war bond purchases through payroll deductions to the extent of 8.7 per cent of their earnings.

Since May 1, 1941, when Series E, F and G bonds were first offered for sale, cash receipts at the Treasury from this source have amounted to more than $11.5 billion, it was announced. In the same period the redemption of these bonds at cost plus accrued interest has totaled $259 million, or about 2.22 per cent of the amount sold. Of the more than $7 billion of Series E bonds sold to individuals, the amount cashed in during the 20-month period has totaled $220 million, or about 3 per cent of sales.

It was also announced that officers and employees of the Order of Railroad Telegraphers and the Brotherhood of Maintenance of Way Employees have authorized deductions in excess of 10 per cent of their payrolls.

Little Change Seen in Eastern Oil Situation

A slight improvement was reported for the second consecutive week in the supply of petroleum products on hand in the East Coast area, Petroleum Administrator Ickes announced February 19, at the same time making public the figures on rail movements of oil into that region for the week ended February 13. Tank car receipts averaged 806,986 barrels a day, he said, a decrease of 25,910 barrels a day, or about 3 per cent, from the previous week. Tank car deliveries into New England averaged 154,810 barrels a day during the week, a slight decrease from the previous week, while box car shipments of kerosene in drums into that territory averaged 18,713 barrels a day, an increase of 9,788 barrels a day over the previous week.

Deliveries of gasoline and kerosene into the southern portion of District No. 1, the Atlantic seaboard states, will be increased, the statement adds, as a result of the completion of the so-called Bayou pipeline, running from the refinery centers on the Texas Gulf coast to Baton Rouge, La., where it connects with the Plantation pipeline to Greensboro, N. C., which is now being extended into Virginia. Shipments are expected to be increased about 30,000 barrels a day through this route.

Loading facilities at Norris City, Ill., terminus of the newly opened crude oil pipeline from the Texas oilfields, are being rushed to completion, the Office of Defense Transportation announced last week, to give the terminal a capacity of 1,160 tank cars daily. There are 16 single-car outlets in addition to three racks with a capacity of 254 cars at a time. Most of the oil loaded at Norris City is moving in symbol trains to refinery districts in the vicinity of Philadelphia, Pa., and New York.

Summarizing the results of their most recent inquiries into the oil situation, the special Senate committee under the chairmanship of Senator Maloney, Democrat of Connecticut, on February 22 submitted an "additional report" which indicated that substantial improvement in petroleum transportation facilities is expected before next winter, though little hope is held out that supplies available to civilians will be augmented materially.

With respect to transportation, the committee's conclusions read as follows:

> Although much sincere effort has been spent on the problem of transporting petroleum into the distressed areas, the committee has too often been informed that things cannot be done rather than that a way must be found to do them. As a result, suggested improvements have been put into effect only after months of discussion, and in some cases delay nullifies the suggestion.
>
> Substantially more petroleum products can be moved by rail. To date the railroads have done a magnificent job in increasing the movement of oil to district 1 from 5,000 barrels a day to over 800,000 barrels. However, the committee feels, and it has been assured by Mr. John J. Pelley, president, Association of American Railroads, that the railroads can do even more and are working to that end.
>
> Consideration should be given to the pooling of oil for transportation, discontinuing the present practice of specifically earmarked individual shipments by companies to specific consumers. This would increase efficiency, as the pre-war marketing structure was not designed for present conditions. This proposal is by no means revolutionary, as oil going through pipelines has been similarly pooled. To a certain extent this has been done by the Petroleum Administrator for War by designating terminals to receive trainload shipments. Supplies so received are allocated among all companies needing them. Much more should be done along these lines.

In the body of the report, in the section dealing with transportation, the committee again refers to the possibility of speeding tank car movements by wide application of the pooling technique, stressing the testimony of Mr. Pelley at a committee hearing that more solid trains of oil could be dispatched if shipper's designations of destination could be disregarded. Some of the government agencies concerned with the oil problem were criticised in the report for dilatory action in adopting expedients suggested by the committee and others for increasing deliveries to the East Coast, by barge and pipeline as well as by rail.

I. C. C.'s New York Coal Agent Gets Rerouting Authority

Additional authority to divert and reroute coal moving to or through New York, New Jersey, Delaware, Pennsylvania, and Maryland ports for transshipment by vessels is now vested in the Interstate Commerce Commission's coal agent at New York—W. R. Godber, joint manager of the Anthracite Tidewater Emergency Bureau and Northern Tidewater Bituminous Emergency Committee. The extension of Mr. Godber's authority came in Amendment No. 1 to Service Order No. 92 which was issued February 19.

Under the original order, effective November 1, 1942, Mr. Godber was one of three agents appointed by the commission when it established the permit system controlling rail shipments of coal for transshipment at the above ports as well as those on Lake Ontario, Lake Erie, and Lake Michigan, and Hampton Roads, Va. The original order gave the agents power to control the flow to the ports by the exercise of their permit-issuing authority; but they did not get authority to divert and reroute.

The day before it extended Mr. Godber's authority the commission had issued Service Order 111 directing the Pennsylvania to divert 250 cars of bituminous coal consigned to the Koppers Company at South Amboy, N. J.; 150 of the cars were sent to Edgewater Pier, N. J., on the New York, Susquehanna & Western, and 100 to Perth Amboy (N. J.) Pier on the Lehigh Valley.

Materials and Prices

Following is a digest of orders and notices of interest to railroads, issued by the War Production Board and the Office of Price Administration since February 15:

CMP materials—A Consumer Allotment Accounting Manual will be available by the end of February to assist manufacturers in organizing the record keeping and accounting required under the Controlled Materials Plan. Although the manual has been prepared by the Controller Division, there is no requirement that the records and accounts be kept in the manner set forth. The manual deals with accounting for allotments and does not cover the keeping of records of actual receipt, shipment or use of any material. The records, which a manufacturer normally maintains on material received, put into production and in inventory, should be sufficient to show that the materials were used for the authorized production schedule. Such records must not be confused with the suggested records for allotments under the Controlled Materials Plan.

Among the more important suggestions of the Consumers Allotment Accounting Manual is the possible use of a file case record as compared with a card or ledger record, if all transactions regarding an allotment are handled at one time. If the manufacturer's method of operation does not permit the use of the more simple file case record, a record designed for a 5 by 8 in. card is proposed in the manual. A separate card should be used for each controlled material item identified on the allotment form received for each major program of a Claimant Agency and for each calendar quarter. Entries in the Allotments Received column are made from forms CMP-4A, CMP-4B, CMP-4C and CMP-5 received by the consumer. Re-allotments to other consumers are made on CMP-4 and CMP-5 forms or by endorsement on purchase or delivery orders, and the quantities contained are posted in the column headed Re-allotted to Other Consumers, reducing the Allotment Balance. When orders are placed with primary producers or warehouses calling for delivery of controlled materials, the quantities ordered are posted in the Orders Placed column and the Allotment Balance reduced.

Allotments received by prime consumers direct from Claimant Agencies will be accompanied by a complete allotment number consisting of a letter symbol, four digits representing the program number and three additional digits indicating the authorized schedule number. Consumers are required to pass on only the Claimant Agency letter symbol and the first digit of the four digit number, which is used to identify a major program of a Claimant Agency. Manufacturers' records need not segregate all transactions pertaining to each complete allotment number. Instead, consumers may combine all allotments received into major programs of Claimant Agencies. In addition, consumers account for allotments of controlled materials—steel, copper and aluminum—by quarters, instead of months. Allotments for the second quarter of 1943 will be identified by -16, following the Agency symbol and major program number; allotments covering the third quarter by -19; fourth quarter allotments by -22; and allotments for the first quarter of 1941 by -25.

A letter, issued February 19, announced the decision to do away with the requirement that manufacturers file Form CMP-6 with all purchase orders for controlled materials. This action is made possible by simplification of allotment procedures effected in the recent amendment of CMP Regulation No. 1.

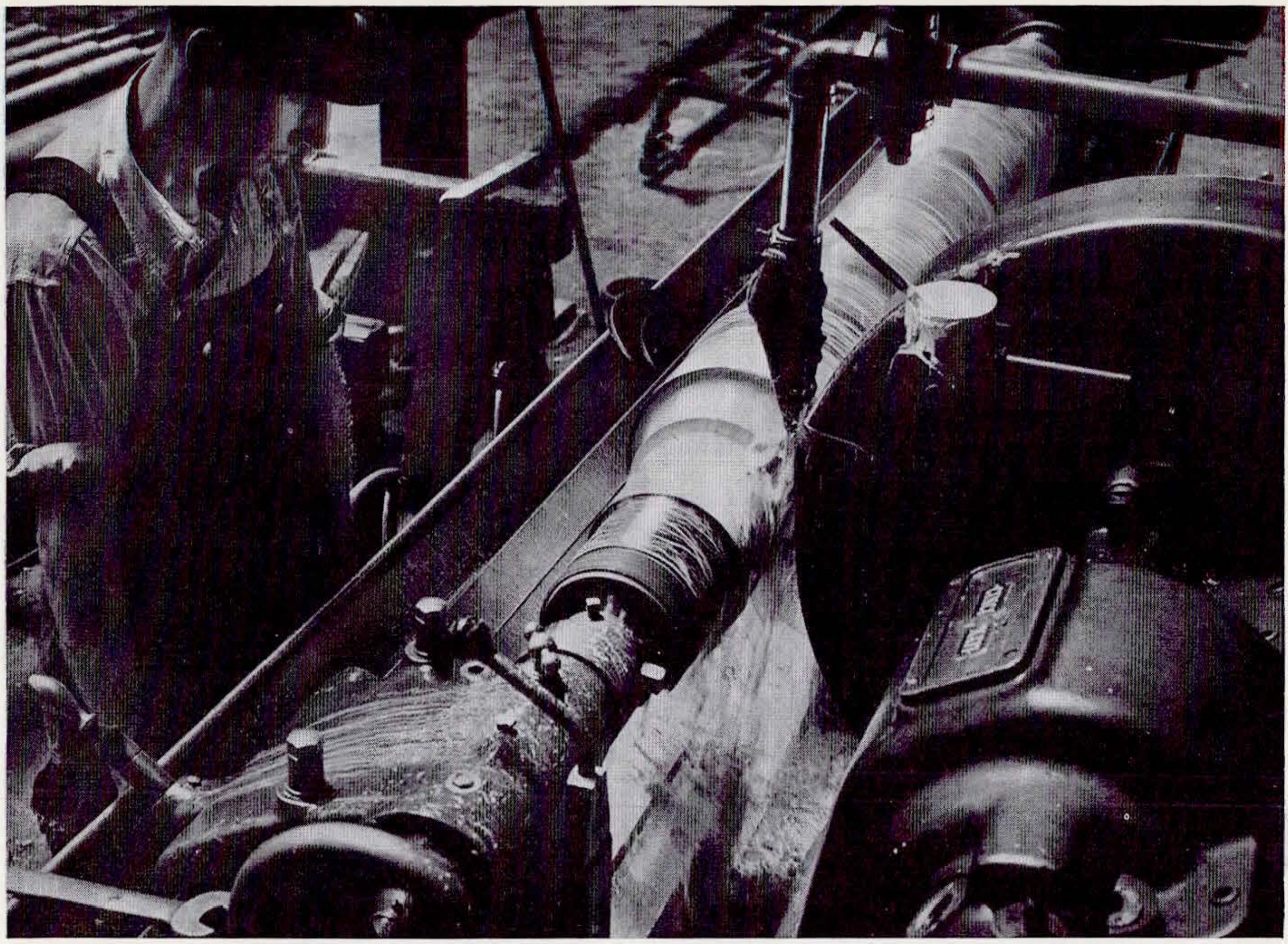
Maintenance material—An amendment to Conservation Order L-41, effective February 21, specifically designates that where a single job is partly maintenance and repair and partly new construction, the whole project will be considered new construction and subject to Order L-41. In addition, the amendment reduces to $200 new construction which may be undertaken, without specific authority, by a number of enterprises which are not essential to the war program. Under the new definition, maintenance and repair means the work that is necessary to keep a structure in sound condition, but does not include any building operation involving a structural alteration or change in design. In specifying industrial structures whose exemption under L-41 is reduced to $200, the amendment embraces any industrial construction with a productive floor area of less than 10,000 sq. ft. The amount of exemptions previously allowed these structures varied. Provision is made for emergency work on any damaged structures for the protection of the structure and the public. In prohibiting construction in violation of L-41, the amended order forbids not only the beginning of such construction but also forbids carrying on or participating in the work. The cost of construction as defined in the order has been narrowed to exclude financing and insurance charges as elements of cost. The order, as amended, provides that no construction may be begun or carried on unless it is specifically authorized by WPB or unless the estimated cost of the project is limited to stated amounts. These amounts limit construction to $200 for residential and some specifically mentioned types; $5,000 for industrial; and $1,000 for other restricted construction not otherwise classified. In addition to redefining costs so that financing and insurance charges are no longer considered elements of cost, the order also excludes the cost of production machinery or equipment to be used directly in manufacturing for the purpose of determining whether a certain job is exempt under the terms of the order. Where a structure has been damaged or destroyed by disaster, the order now expressly exempts such construction work as is necessary to protect or make safe the building or its contents. This permits the shoring up of walls of a damaged structure or other similar work necessary to protect the property, its contents or the public.

Plumbing—Schedule XII to Limitation Order L;42, as amended February 20, eliminates "trap standard" from the definition of plumbing fixture, thus leaving the product to be manufactured as has been customary in the past. The amendment permits the use of a maximum of one pound of ferrous metal for spuds and increases the limits on weight of metal in component parts of tanks for urinals, heretofore restricted to four pounds. The original provision failed to take into account the fact that batteries of urinals sometimes use a common tank and that in such cases component working parts require more metal.

Prices

Fuel oil—Amendment No. 22 to Fuel Oil Price Regulation No. 137, effective February 16, replaces temporary maximum prices for fuel oils in the lower Michigan Peninsula in November by adjusted ceilings for kerosene, range oil, prime white distillate and No. 1, 2 and 3 fuel oil at both tank wagon and retail levels. Cents per gallon ceilings were established for the products in the same counties and a new formula was announced for determining maximum prices for these products in the Lower Peninsula, exclusive of the six counties listed. The definition of petroleum products covered by Maximum Price Regulation No. 137 was expanded to include prime white distillate and No. 2 fuel oil and the previous differentials between the products which were set aside by emergency measures are restored by the order. A schedule contains the new prices for the six counties listed, which include the cities of Detroit, Mich., Pontiac, Ann Arbor and Flint. All prices in the schedule reflect the 0.3 cent increase authorized to cover higher costs in the fuel oil rationed area.

News Department continued on next left-hand page



On modern grinders Lima brings to a perfect finish the axles and shafts whose proper fit plays an important part in low maintenance.

"AVAILABILITY" IS AT A PREMIUM!

Squeezing extra miles per month out of every locomotive is a major operating problem today.

Lima's reputation for soundly built locomotives has a firm foundation in the many special Lima methods and equipment that make for low maintenance.

This policy is now of exceptional value to Lima customers. It is helping them meet the problem of keeping locomotives in service.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

GENERAL NEWS

Planning Board Is Again Turned Down

House withholding nourishment, "new social order" must seek Senate succor

Efforts of Representative Magnuson, Democrat of Washington, to provide funds for the maintenance by the National Resources Board of a "skeleton organization" during fiscal 1944 failed in the House of Representatives on February 17 when a point of order was sustained against his proposed Independent Offices Appropriation Bill amendment which would have provided $415,000 for a "National Resources Planning Council." The point of order on the ground that the proposed appropriation "is not authorized by law" was made by Representative Dirksen, Republican of Illinois, and sustained by Representative Whittington, Democrat of Mississippi, who was chairman of the House committee of the whole which had the bill under consideration.

As noted in the *Railway Age* of February 13, page 374, the bill as reported from the House committee on appropriations carried no funds for the Board whose request for $1,400,000 had been approved by the Bureau of the Budget. The committees adverse action brought from President Roosevelt a statement praising the work of the Board and calling for the continuance of post-war planning by it or some like agency. But the House remained unmoved, so that Board must now look to the Senate committee on appropriations.

The bill, which carries funds for the Interstate Commerce Commission and the Public Roads Administration, was passed by the House on the 17th. No change was made in these proposed appropriations as they were reported by the committee and noted in the issue of February 13, page 371—a total of $8,812,000 for the I. C. C., down $692,192 from appropriations for the current fiscal year ending June 30, 1943; and a total of $133,000,000 for PRA.

The latter includes $75,000,000 for access roads, for which PRA would also get additional fiscal 1943 appropriations totaling $40,000,000 in the First Deficiency Appropriation Bill, Fiscal Year 1943, which was reported from the House committee on appropriations February 24. That report explained that the $40,000,000 will be used "for liquidation of contractual authority heretofore granted."

Missouri Intrastate Fares

Acting upon petition of the railroads serving that state, the Interstate Commerce Commission has vacated the No. 28938 investigation of the refusal of Missouri Public Service Commission to authorize the application of the Ex Parte 148 increases to Missouri intrastate fares.

Truck Drivers Get No Pay for Deadheading

Truck drivers riding in sleeping berths in trucks while the relief driver is at the wheel need not be compensated in accordance with the Fair Labor Standards Act for the time so spent, according to an opinion announced on February 15 by L. Metcalfe Walling, Administrator of the Wage and Hour and Pnblic Contracts Division of the U. S. Department of Labor. Mr. Walling held, however, that all other time spent right on the truck and furthering the employer's business would be considered "hours worked" and should be paid for under the Act. This stand, according to Mr. Walling, is in accord with that of the I. C. C.

Status of M. P. General Yardmasters

The Interstate Commerce Commission, Division 3, has found that commission orders now in effect, defining the work of employees or subordinate officials of railroads, include the work of 33 general yardmasters and 22 assistant general yardmasters employed by the Missouri Pacific at 22 specified points on its line. The report in Ex Parte No. 72 (Sub-No. 1) was the result of a petition filed by the Railroad Yardmasters of America.

The commission's ruling is based on its finding that the general yardmasters and assistant general yardmasters involved do not have the authority to hire and discharge employees. Commissioner Johnson, dissenting, expressed his view that the order of February 5, 1924, upon which the majority relied "needs clarification." That order excluded from the employee and subordinate official group "general yardmasters at large and important switching centers where of necessity such general yardmasters are vested with responsibilities and authority that stamp them as officials."

"The mere fact that a person bears the title of general yardmaster and is employed at a large switching center," Mr. Johnson said, "is not sufficient in and of itself to constitute him an official as distinguished from a subordinate official. The responsibilities, authority, and duties vested in him, rather than his title and the locale of his employment, are determinative of his status."

ODT Gets Itself a Bigger Oil Division

Three assistants to director and other staff help are put on payroll.

To meet the increasingly critical wartime problems and expanding responsibilities faced by the Office of Defense Transportation's Division of Petroleum and Other Liquid Transport, additional appointments to the division's administrative staff have been made by ODT Drector Eastman, it was announced February 19.

Fayette B. Dow continues as director of the division, which will have three associate directors, Porter L. Howard, Robert W. Shields, and A. V. Bourque. Mr. Howard, who has been general traffic manager of the Sun Oil Co., Philadelphia, Pa., will assist Mr. Dow in the co-ordination of the division's work with that of other ODT divisions. Mr. Shields, in charge of pipelines, has been chief of the ODT pipeline section since April, 1942, following 28 years on the staff of the Interstate Commerce Commission.

Mr. Bourque will continue in charge of the section of tank car service, of which he was chief until his appointment as associate director. Before the establishment of the ODT he was associated with Mr. Eastman and with Ralph Budd, then transportation commissioner of the advisory commission of the Council for National Defense. The work of the section of tank car service is divided between the petroleum unit and the other liquids unit, both under Mr. Bourque's supervision.

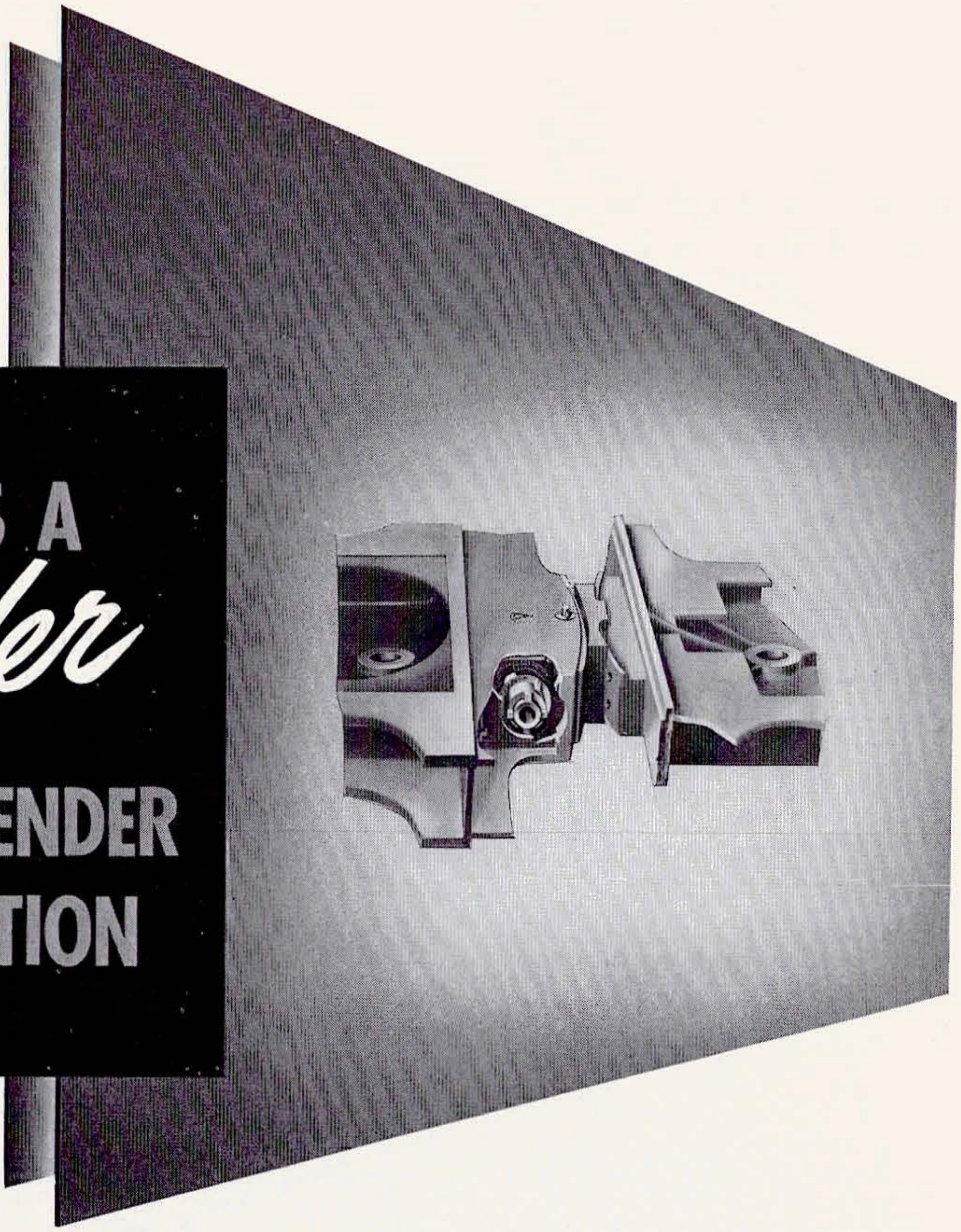
The petroleum unit of the section of tank car service will be in charge of G. E. Everett, who has been appointed chief of the unit, following eight months' service as assistant chief. George J. Reynolds, new chief of the unit of other liquids, has been traffic director at New York of Procter & Gamble Co. Two assistants to Mr. Everett were appointed at the same time, H. P. Ross, who for the past three years has been in charge of tank car movements for the Quartermaster Corps of the Army, and David H. Rotroff of Chicago.

Mr. Bourque's Washington staff also will include E. G. Waring, who recently has been an industrial traffic specialist with the War Department; his title is assistant to the associate director. The newly appointed chief of the pipeline section is Ayden A. Dibble, who became chief engineer of the section in June, 1942.

The appointment of three regional managers for the section of tank car service was announced at the same time. Their

News Department continued on next left-hand page

HERE'S A *Safer* ENGINE-TENDER CONNECTION



The unprecedented increase in tonnages of war materials, and the vital necessity of "keeping 'em rolling" . . . on time . . . have materially increased freight train speeds.

This has caused correspondingly greater stresses on engine-tender connections, where safety is of vital importance.

On thousands of locomotives throughout the country, the Franklin Radial Buffer Type E-2 has provided an ideal, non-binding connection between engine and tender. Its smooth, powerful action deadens vibration and provides increased resistance to compression resulting in improved riding quality and safety of operation.

REG. U.S. PAT. OFF.

FRANKLIN RAILWAY SUPPLY COMPANY NEW YORK
CHICAGO

In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings

For the Week Ended Saturday, February 13

District	1943	1942	1941
Eastern	151,249	165,136	163,270
Allegheny	168,844	174,707	161,880
Pocahontas	55,915	48,439	50,478
Southern	124,564	125,715	112,013
Northwestern	77,119	92,897	80,318
Central Western	113,315	115,743	101,323
Southwestern	73,944	60,064	51,894
Total Western Districts	264,378	268,704	233,535
Total All Roads	764,950	782,701	721,176
Commodities			
Grain and grain products	48,264	38,745	29,297
Live stock	12,471	11,197	10,720
Coal	178,447	154,725	152,908
Coke	15,601	14,102	14,239
Forest products	38,243	47,603	39,328
Ore	14,025	12,920	13,475
Merchandise l.c.l.	94,071	151,517	153,049
Miscellaneous	363,828	351,892	308,157
February 13	764,950	782,701	721,176
February 6	755,386	783,962	710,196
January 30	734,582	815,565	714,354
January 23	703,578	818,081	710,752
January 16	755,369	811,327	703,497
Cumulative Total, 7 Weeks	5,051,185	4,425,142	4,885,781

In Canada.—Carloadings for the week ended February 13 totaled 60,503, as compared with 62,303 for the previous week and 61,912 for the corresponding week last year, according to the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
February 13, 1943	60,503	36,383
February 6, 1943	62,303	36,986
January 30, 1943	58,503	36,022
February 14, 1942	61,912	31,818
Cumulative Totals for Canada:		
February 13, 1943	396,683	235,065
February 14, 1942	420,713	215,144
February 15, 1941	359,541	191,036

New Jersey Canal Bill

Representative McCormack, Democrat of Massachusetts, has introduced H. R. 1880 to authorize a $187,000,000 appropriation for the construction of the New York Bay-

Operating Revenues and Operating Expenses of Class I Steam Railways

Compiled from 133 Monthly Reports of Revenues and Expenses Representing 136 Class I Steam Railways
(*Switching and Terminal Companies Not Included*)

FOR THE MONTH OF DECEMBER, 1942 AND 1941

	United States		Eastern District		Southern District		Western District	
Item	1942	1941	1942	1941	1942	1941	1942	1941
Miles of road operated at close of month	229,800	231,811	56,650	57,034	43,495	43,912	129,655	130,865
Revenues:								
Freight	$531,918,083	$389,222,726	$200,906,216	$164,013,514	$104,480,482	$76,850,872	$226,531,385	$148,358,340
Passenger	119,150,730	53,868,286	49,134,265	26,529,183	24,303,559	9,514,627	45,712,906	17,824,476
Mail	13,100,174	12,179,894	4,519,365	4,311,270	2,308,939	2,030,918	6,271,870	5,837,706
Express	11,140,498	5,775,901	3,509,143	1,640,856	1,554,951	1,054,828	6,076,404	3,080,217
All other operating revenues	27,685,787	18,513,347	11,689,080	9,008,603	3,830,799	2,583,729	12,165,908	6,921,015
Railway operating revenues	702,995,272	479,560,154	269,758,069	205,503,426	136,478,730	92,034,974	296,758,473	182,021,754
Expenses:								
Maintenance of way and structures	72,879,985	55,862,182	25,083,671	25,603,783	14,735,134	8,282,357	33,061,180	21,976,042
Maintenance of equipment	110,841,642	93,545,288	46,883,009	41,923,249	21,578,002	17,729,929	42,380,631	33,892,110
Traffic	10,583,899	9,804,744	3,833,306	3,457,482	2,054,219	1,932,120	4,696,374	4,415,142
Transportation—Rail line	214,445,553	176,228,949	95,952,956	79,028,110	36,397,008	28,940,055	82,095,589	68,260,784
Transportation—Water line	1,290	*d*9,996	......	......	......	......	1,290	*d*9,996
Miscellaneous operations	8,342,532	4,971,423	3,099,445	2,082,334	1,356,800	767,313	3,886,287	2,121,776
General	14,778,099	12,646,907	6,013,813	5,151,301	2,869,115	2,436,881	5,895,171	5,058,725
Transportation for investment—Cr.*	......	460,409	......	146,695	......	52,239	......	261,475
Railway operating expenses	431,873,000	352,589,088	180,866,200	157,099,564	78,990,278	60,036,416	172,016,522	135,453,108
Net revenue from railway operations	271,122,272	126,971,066	88,891,869	48,403,862	57,488,452	31,998,558	124,741,951	46,568,646
Railway tax accruals	83,578,821	34,765,381	17,497,332	12,856,084	20,844,142	9,438,427	45,237,347	12,470,870
Railway operating income	187,543,451	92,205,685	71,394,537	35,547,778	36,644,310	22,560,131	79,504,604	34,097,776
Equipment rents—Dr. balance	12,056,388	8,902,530	3,865,533	4,701,243	979,238	74,439	7,211,617	4,126,848
Joint facility rent—Dr. balance	4,636,077	3,970,745	2,145,192	1,545,240	416,342	269,995	2,074,543	2,155,510
Net railway operating income	170,850,986	79,332,410	65,383,812	29,301,295	35,248,730	22,215,697	70,218,444	27,815,418
Ratio of expenses to revenues (per cent)	61.4	73.5	67.0	76.4	57.9	65.2	58.0	74.4
Depreciation included in operating expenses	19,061,010	23,308,300	9,064,717	13,517,770	3,064,011	3,318,764	6,932,282	6,471,766
Amortization of defense projects	15,225,212	3,702,492	5,147,685	284,988	5,015,058	1,991,317	5,062,469	1,426,187
Pay roll taxes	15,483,230	13,604,627	6,621,052	5,896,831	2,767,367	2,397,216	6,094,811	5,310,580
All other taxes**	68,095,591	21,160,754	10,876,280	6,959,253	18,076,775	7,041,211	39,142,536	7,160,290

FOR TWELVE MONTHS ENDED WITH DECEMBER, 1942 AND 1941

	United States		Eastern District		Southern District		Western District	
Item	1942	1941	1942	1941	1942	1941	1942	1941
Miles of road operated at close of month‡	231,012	232,188	56,883	57,194	43,747	44,118	130,382	130,876
Revenues:								
Freight	$5,944,742,473	$4,447,568,333	$2,390,017,653	$1,897,602,180	$1,155,960,659	$867,181,044	$2,398,764,161	$1,682,785,109
Passenger	1,028,185,625	514,687,031	467,756,830	264,430,067	200,813,778	86,502,008	359,615,017	163,754,956
Mail	111,377,031	108,192,466	40,211,110	39,832,288	19,906,093	18,486,001	51,259,828	49,874,177
Express	96,869,122	57,281,534	35,159,558	21,793,450	15,160,058	11,223,573	46,529,506	24,264,509
All other operating revenues	285,052,803	218,970,634	129,597,888	107,032,598	37,114,761	27,141,711	118,340,154	84,796,325
Railway operating revenues	7,466,227,054	5,346,699,998	3,062,743,039	2,330,690,583	1,428,975,349	1,010,534,339	2,974,508,666	2,005,475,076
Expenses:								
Maintenance of way and structures	796,383,461	603,088,380	318,360,978	247,348,526	140,239,056	103,309,667	337,783,427	252,430,187
Maintenance of equipment	1,211,083,970	992,612,933	535,829,530	460,587,742	232,971,843	184,330,109	442,282,597	347,695,082
Traffic	117,777,507	111,888,396	42,856,206	40,035,158	23,033,250	21,864,449	51,888,051	49,988,789
Transportation—Rail line	2,241,991,277	1,771,851,970	1,013,798,568	814,600,716	380,727,815	295,273,749	847,464,894	661,977,505
Transportation—Water line	*d*733	3,106,813	......	......	......	......	*d*733	3,106,813
Miscellaneous operations	75,893,542	47,521,143	29,629,200	20,446,213	12,132,471	6,752,461	34,131,871	20,322,469
General	158,300,919	138,201,020	63,778,960	54,721,550	30,526,713	26,868,299	63,995,246	56,611,171
Transportation for investment—Cr.*	......	4,038,420	......	781,727	......	697,472	......	2,559,221
Railway operating expenses	4,601,429,943	3,664,232,235	2,004,253,442	1,636,958,178	819,631,148	637,701,262	1,777,545,353	1,389,572,795
Net revenue from railway operations	2,864,797,111	1,682,467,763	1,058,489,597	693,732,405	609,344,201	372,833,077	1,196,963,313	615,902,281
Railway tax accruals	1,202,443,297	547,230,070	436,682,844	228,837,825	307,712,727	137,638,672	458,047,726	180,753,573
Railway operating income	1,662,353,814	1,135,237,693	621,806,753	464,894,580	301,631,474	235,194,405	738,915,587	435,148,708
Equipment rents—Dr. balance	141,022,065	102,176,698	64,343,319	49,946,457	8,262,133	819,464	68,416,613	51,410,777
Joint facility rent—Dr. balance	40,390,989	34,774,287	20,697,793	18,315,320	4,365,405	3,659,162	15,327,791	12,799,805
Net railway operating income	1,480,940,760	998,286,708	536,765,641	396,632,803	289,003,936	230,715,779	655,171,183	370,938,126
Ratio of expenses to revenues (per cent)	61.6	68.5	65.4	70.2	57.4	63.1	59.8	69.3
Depreciation included in operating expenses	247,403,404	221,015,790	114,397,157	100,309,334	46,585,874	43,045,831	86,420,373	77,660,625
Amortization of defense projects	91,956,974	8,344,715	30,508,651	999,733	25,812,753	3,271,743	35,635,570	4,073,239
Pay roll taxes	171,049,348	138,043,985	74,481,285	61,318,282	30,144,726	23,912,923	66,423,337	52,812,780
All other taxes†	1,031,393,949	409,186,085	362,201,559	167,519,543	277,568,001	113,725,749	391,624,389	127,940,793

---

d Decrease, deficit, or other reverse items.

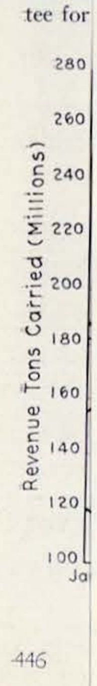
‡ Represents an average of the mileage reported at the close of each month within the period.

* General Account VIII. Transportation for Investment—Cr. canceled effective January 1, 1942.

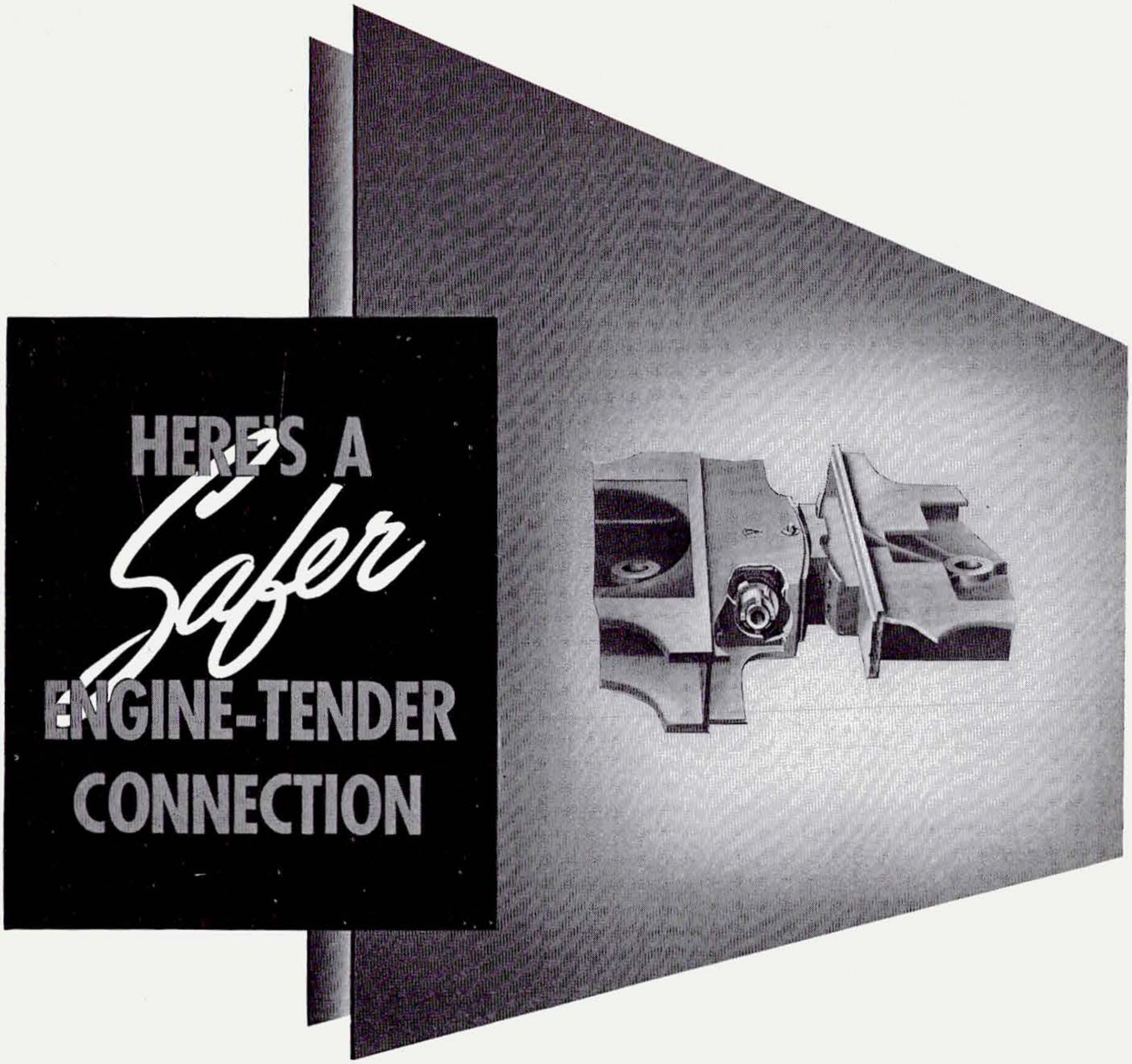
** Includes Federal income tax, surtax and excess profits tax as follows: United States, $46,129,243; Eastern District, $1,309,701; Pocahontas Region, $4,972,622; Southern Region, $8,304,387; and Western District, $31,542,533, for December 1942.

† Includes Federal income tax, surtax and excess profits tax as follows: United States, $759,055,722; Eastern District, $244,280,764; Pocahontas Region, $90,833,454; Southern Region, $130,761,287; and Western District, $293,180,217, for the 1942 period.

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.



News Department continued on next left-hand page



The unprecedented increase in tonnages of war materials, and the vital necessity of "keeping 'em rolling" . . . on time . . . have materially increased freight train speeds.

This has caused correspondingly greater stresses on engine-tender connections, where safety is of vital importance.

On thousands of locomotives throughout the country, the Franklin Radial Buffer Type E-2 has provided an ideal, non-binding connection between engine and tender. Its smooth, powerful action deadens vibration and provides increased resistance to compression resulting in improved riding quality and safety of operation.

FRANKLIN RAILWAY SUPPLY COMPANY NEW YORK CHICAGO

In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL duties include issuing permits for short-haul movements, control of surplus tank cars, and expedited loading, unloading, and movement of tank cars within their territories. R. A. Green, formerly with the Standard Oil Co. of New Jersey, will have charge of the New York and New England areas, with offices in New York. Eugene Jackson, who was traffic manager for the Wine Institute of America, will have charge of the territory west of the Rocky Mountains, with offices in San Francisco, Calif. The southwestern states territory will be in charge of John W. Painter, who has been in charge of tank car operations for the Deep Water Refining Co. and other oil companies; his offices will be in Houston, Tex.

Illinois Commutation Fares

The Interstate Commerce Commission has instituted an investigation into the refusal of the Illinois Commerce Commission to authorize the application of the Ex Parte 148 fare increase to intrastate commutation fares and certain special round-trip fares. The proceeding is docketed as No. 28943.

Safety Poster for March

The safety poster issued by the Committee on Education of the Safety Section, Association of American Railroads, for March emphasizes the importance of protecting the eyes with goggles when doing work where there is any possibility of injury. The poster is entitled "Which Is Your Game?—Blind Man's Buff or I Spy—Let Your Goggles Choose."

No Mechanical Division Meeting This Year

In a circular letter dated February 11, A. C. Browning, secretary of the A. A. R. Mechanical division, announced that there will be no annual meeting of the division during the year 1943. The letter stated that committees of the division are active in handling matters requiring attention, particularly those relating to the war effort, and recommendations proposed by the various committees during the year will be placed before the General committee for prompt action. Any members having important suggestions or recommendations are requested to submit them to the secretary's office for assignment to the proper committees. The decision to forego an annual meeting of the division in 1943 was made by the General committee.

January Operating Revenues 36.7 Per Cent Above 1942

Preliminary reports from 89 Class I railroads, representing 82.4 per cent of total operating revenues, made public February 18 by the Association of American Railroads, show that those roads in January had estimated operating revenues amounting to $541,669,326, compared with $396,197,162 in the same month of 1942, or an increase of 36.7 per cent.

Freight revenues of the 89 roads in January amounted to $415,187,550 compared with $322,714,072 in January, 1942, or an increase of 28.7 per cent. Passenger revenues totaled $90,388,220 compared with $46,137,435 in January, 1942, or an increase of 95.9 per cent.

Study Board Investigates Rate-Making Procedures

The Transportation Board of Investigation and Research, as a part of a study it is making of the rate-making procedures of rail, motor, and water carriers, has directed inquiries to rate bureaus and tariff publishing agents "to determine whether the present methods of the carriers are well designed to produce rates, charges, rules, regulations, and practices that will best serve the needs of both shippers and carriers."

A February 23 press release said that the Board's interest is in facts about the organization, membership, and procedures of all associations, bureaus, committees, and conferences set up by rail, motor, and water carriers for the consideration of proposals involving changes in classifications, rates, rules, and regulations applicable on freight traffic.

The Board is further seeking information from other parties concerned. Statements are invited from carrier officials, shippers and their traffic representatives, and from state railroad and utility commissioners and their rate experts. They are asked to state the results of their experiences respecting the adequacy and efficiency of the present rate-making methods of the carriers for handling proposed rate and tariff changes from the standpoint of (a) prompt and willing consideration of applications for changes, (b) notifying interested parties of requests for adjustments, (c) making full investigations of proposals, (d) encouraging full and frank discussion at hearings with the view to developing pertinent facts, (e) prompt disposition of applications, and (f) of notifying interested parties of the decision with an explanation of the grounds for the findings.

I. C. C. Approves T. & P. Contract for Temperature Control Service

The Interstate Commerce Commission, Division 3, has approved a Texas & Pacific contract with American Refrigerator Transit Company, covering protective services, i.e., temperature control services for the protection of perishable freight against heat or cold. The commission's action came in a supplemental report in the Ex Parte No. 137 proceeding which was instituted after the Transportation Act of 1940 gave the commission jurisdiction over the matter.

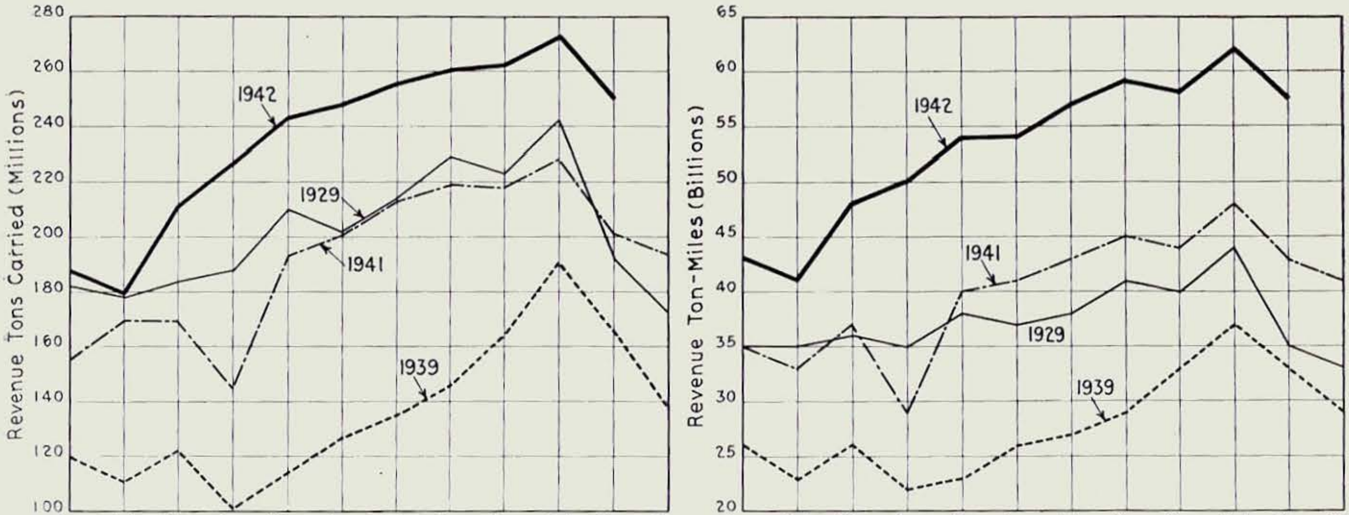
Ceiling on Oil Barge Rates

Specific maximum charges in terms of mills per ton-mile have been established by the Office of Price Administration for barge shipment of petroleum products by carriers other than common carriers on the Gulf Intracoastal Waterway between Texas and Florida, effective February 19. These rates are specified in Amendment 118 to Supplementary Regulation 14 to the OPA's General Maximum Price Regulation.

Freight Car Loading

Carloading reports were so delayed by the Washington's Birthday holiday that the Association of American Railroads had not announced the total for the week ended February 20 when this issue went to press.

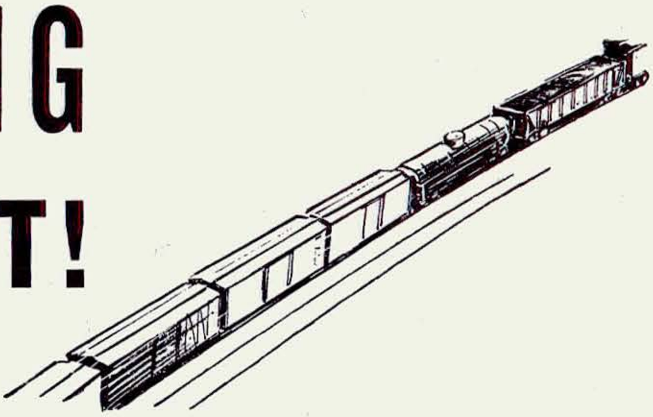
Loading of revenue freight for the week ended February 13 totaled 764,950 cars, and the summary for that week, compiled



Revenue Tons and Revenue Ton-Miles—1942 Compared With 1929, 1939 and 1941

News Department continued on next left-hand page

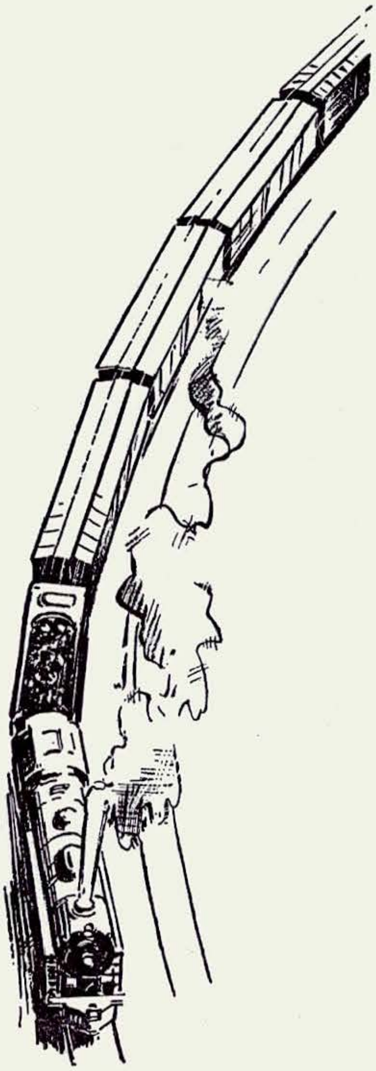
FUEL SAVING
AN ARCH HABIT!

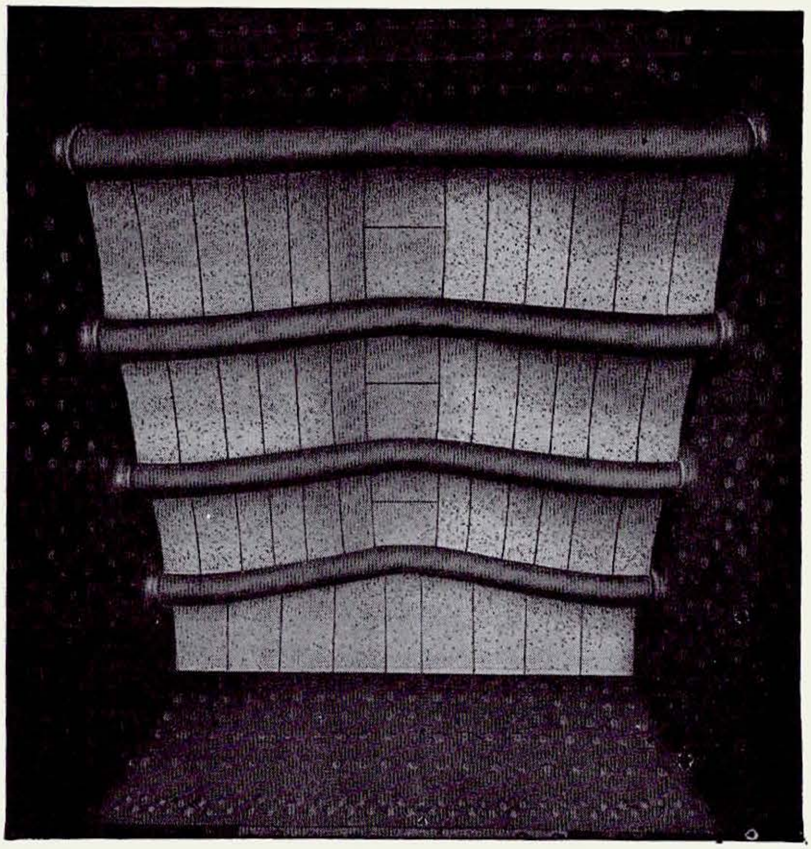


Over 32 years ago railroad men satisfied themselves as to the fuel saving of the locomotive Arch.

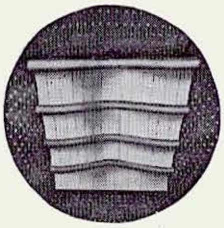
Since then the increase in locomotive power, higher rates of combustion and the widespread use of stokers has increased the fuel savings attributable to the Arch.

Today, when conservation of fuel is so vitally important to our war effort, don't handicap the effectiveness of the Arch by skimping on Arch brick. When your locomotives leave the roundhouse, be sure they are equipped with a *complete* Arch.





HARBISON-WALKER
REFRACTORIES CO.
Refractory Specialists



AMERICAN ARCH CO.
INCORPORATED
60 EAST 42nd STREET, NEW YORK, N. Y.
Locomotive Combustion
Specialists

by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings

For the Week Ended Saturday, February 13

District	1943	1942	1941
Eastern	151,249	165,136	163,270
Allegheny	168,844	174,707	161,880
Pocahontas ...	55,915	48,439	50,478
Southern	124,564	125,715	112,013
Northwestern ..	77,119	92,897	80,318
Central Western	113,315	115,743	101,323
Southwestern ..	73,944	60,064	51,894
Total Western Districts	264,378	268,704	233,535
Total All Roads	764,950	782,701	721,176
Commodities			
Grain and grain products	48,264	38,745	29,297
Live stock.....	12,471	11,197	10,720
Coal	178,447	154,725	152,908
Coke	15,601	14,102	14,239
Forest products	38,243	47,603	39,328
Ore	14,025	12,920	13,475
Merchandise l.c.l.	94,071	151,517	153,049
Miscellaneous ..	363,828	351,892	308,157
February 13....	764,950	782,701	721,176
February 6....	755,386	783,962	710,196
January 30....	734,582	815,565	714,354
January 23....	703,578	818,081	710,752
January 16....	755,369	811,327	703,497
Cumulative Total, 7 Weeks.....	5,051,185	4,425,142	4,885,781

In Canada.—Carloadings for the week ended February 13 totaled 60,503, as compared with 62,303 for the previous week and 61,912 for the corresponding week last year, according to the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
February 13, 1943....	60,503	36,383
February 6, 1943....	62,303	36,986
January 30, 1943.....	58,503	36,022
February 14, 1942....	61,912	31,818
Cumulative Totals for Canada:		
February 13, 1943....	396,683	235,065
February 14, 1942....	420,713	215,144
February 15, 1941....	359,541	191,036

New Jersey Canal Bill

Representative McCormack, Democrat of Massachusetts, has introduced H. R. 1880 to authorize a $187,000,000 appropriation for the construction of the New York Bay-

Operating Revenues and Operating Expenses of Class I Steam Railways

Compiled from 133 Monthly Reports of Revenues and Expenses Representing 136 Class I Steam Railways
(Switching and Terminal Companies Not Included)

FOR THE MONTH OF DECEMBER, 1942 AND 1941

Item	United States		Eastern District		Southern District		Western District	
	1942	1941	1942	1941	1942	1941	1942	1941
Miles of road operated at close of month	229,800	231,811	56,650	57,034	43,495	43,912	129,655	130,865
Revenues:								
Freight	$531,918,083	$389,222,726	$200,906,216	$164,013,514	$104,480,482	$76,850,872	$226,531,385	$148,358,340
Passenger	119,150,730	53,868,286	49,134,265	26,529,183	24,303,559	9,514,627	45,712,906	17,824,476
Mail	13,100,174	12,179,894	4,519,365	4,311,270	2,308,939	2,030,918	6,271,870	5,837,706
Express	11,140,498	5,775,901	3,509,143	1,640,856	1,554,951	1,054,828	6,076,404	3,080,217
All other operating revenues	27,685,787	18,513,347	11,689,080	9,008,603	3,830,799	2,583,729	12,165,908	6,921,015
Railway operating revenues	702,995,272	479,560,154	269,758,069	205,503,426	136,478,730	92,034,974	296,758,473	182,021,754
Expenses:								
Maintenance of way and structures	72,879,985	55,862,182	25,083,671	25,603,783	14,735,134	8,282,357	33,061,180	21,976,042
Maintenance of equipment	110,841,642	93,545,288	46,883,009	41,923,249	21,578,002	17,729,929	42,380,631	33,892,110
Traffic	10,583,899	9,804,744	3,833,306	3,457,482	2,054,219	1,932,120	4,696,374	4,415,142
Transportation—Rail line	214,445,553	176,228,949	95,952,956	79,028,110	36,397,008	28,940,055	82,095,589	68,260,784
Transportation—Water line	1,290	*d*9,996	......	......	......	......	1,290	*d*9,996
Miscellaneous operations	8,342,532	4,971,423	3,099,445	2,082,334	1,356,800	767,313	3,886,287	2,121,776
General	14,778,099	12,646,907	6,013,813	5,151,301	2,869,115	2,436,881	5,895,171	5,058,725
Transportation for investment—Cr.*	......	460,409	......	146,695	......	52,239	......	261,475
Railway operating expenses ...	431,873,000	352,589,088	180,866,200	157,099,564	78,990,278	60,036,416	172,016,522	135,453,108
Net revenue from railway operations	271,122,272	126,971,066	88,891,869	48,403,862	57,488,452	31,998,558	124,741,951	46,568,646
Railway tax accruals	83,578,821	34,765,381	17,497,332	12,856,084	20,844,142	9,438,427	45,237,347	12,470,870
Railway operating income	187,543,451	92,205,685	71,394,537	35,547,778	36,644,310	22,560,131	79,504,604	34,097,776
Equipment rents—Dr. balance	12,056,388	8,902,530	3,865,533	4,701,243	979,238	74,439	7,211,617	4,126,848
Joint facility rent—Dr. balance	4,636,077	3,970,745	2,145,192	1,545,240	416,342	269,995	2,074,543	2,155,510
Net railway operating income ..	170,850,986	79,332,410	65,383,812	29,301,295	35,248,730	22,215,697	70,218,444	27,815,418
Ratio of expenses to revenues (per cent)	61.4	73.5	67.0	76.4	57.9	65.2	58.0	74.4
Depreciation included in operating expenses	19,061,010	23,308,300	9,064,717	13,517,770	3,064,011	3,318,764	6,932,282	6,471,766
Amortization of defense projects ...	15,225,212	3,702,492	5,147,685	284,988	5,015,058	1,991,317	5,062,469	1,426,187
Pay roll taxes	15,483,230	13,604,627	6,621,052	5,896,831	2,767,367	2,397,216	6,094,811	5,310,580
All other taxes**	68,095,591	21,160,754	10,876,280	6,959,253	18,076,775	7,041,211	39,142,536	7,160,290

FOR TWELVE MONTHS ENDED WITH DECEMBER, 1942 AND 1941

Item	United States		Eastern District		Southern District		Western District	
	1942	1941	1942	1941	1942	1941	1942	1941
Miles of road operated at close of month‡	231,012	232,188	56,883	57,194	43,747	44,118	130,382	130,876
Revenues:								
Freight	$5,944,742,473	$4,447,568,333	$2,390,017,653	$1,897,602,180	$1,155,960,659	$867,181,044	$2,398,764,161	$1,682,785,109
Passenger	1,028,185,625	514,687,031	467,756,830	264,430,067	200,813,778	86,502,008	359,615,017	163,754,956
Mail	111,377,031	108,192,466	40,211,110	39,832,288	19,906,093	18,486,001	51,259,828	49,874,177
Express	96,869,122	57,281,534	35,159,558	21,793,450	15,160,058	11,223,573	46,529,506	24,264,509
All other operating revenues	285,052,803	218,970,634	129,597,888	107,032,598	37,114,761	27,141,711	118,340,154	84,796,325
Railway operating revenues	7,466,227,054	5,346,699,998	3,062,743,039	2,330,690,583	1,428,975,349	1,010,534,339	2,974,508,666	2,005,475,076
Expenses:								
Maintenance of way and structures	796,383,461	603,088,380	318,360,978	247,348,526	140,239,056	103,309,667	337,783,427	252,430,187
Maintenance of equipment	1,211,083,970	992,612,933	535,829,530	460,587,742	232,971,843	184,330,109	442,282,597	347,695,082
Traffic	117,777,507	111,888,396	42,856,206	40,035,158	23,033,250	21,864,449	51,888,051	49,988,789
Transportation—Rail line	2,241,991,277	1,771,851,970	1,013,798,568	814,600,716	380,727,815	295,273,749	847,464,894	661,977,505
Transportation—Water line	*d*733	3,106,813	......	......	......	......	*d*733	3,106,813
Miscellaneous operations	75,893,542	47,521,143	29,629,200	20,446,213	12,132,471	6,752,461	34,131,871	20,322,469
General	158,300,919	138,201,020	63,778,960	54,721,550	30,526,713	26,868,299	63,995,246	56,611,171
Transportation for investment—Cr.*	......	4,038,420	......	781,727	......	697,472	......	2,559,221
Railway operating expenses ...	4,601,429,943	3,664,232,235	2,004,253,442	1,636,958,178	819,631,148	637,701,262	1,777,545,353	1,389,572,795
Net revenue from railway operations	2,864,797,111	1,682,467,763	1,058,489,597	693,732,405	609,344,201	372,833,077	1,196,963,313	615,902,281
Railway tax accruals	1,202,443,297	547,230,070	436,682,844	228,837,825	307,712,727	137,638,672	458,047,726	180,753,573
Railway operating income	1,662,353,814	1,135,237,693	621,806,753	464,894,580	301,631,474	235,194,405	738,915,587	435,148,708
Equipment rents—Dr. balance	141,022,065	102,176,698	64,343,319	49,946,457	8,262,133	819,464	68,416,613	51,410,777
Joint facility rent—Dr. balance	40,390,989	34,774,287	20,697,793	18,315,320	4,365,405	3,659,162	15,327,791	12,799,805
Net railway operating income ..	1,480,940,760	998,286,708	536,765,641	396,632,803	289,003,936	230,715,779	655,171,183	370,938,126
Ratio of expenses to revenues (per cent)	61.6	68.5	65.4	70.2	57.4	63.1	59.8	69.3
Depreciation included in operating expenses	247,403,404	221,015,790	114,397,157	100,309,334	46,585,874	43,045,831	86,420,373	77,660,625
Amortization of defense projects ...	91,956,974	8,344,715	30,508,651	999,733	25,812,753	3,271,743	35,635,570	4,073,239
Pay roll taxes	171,049,348	138,043,985	74,481,285	61,318,282	30,144,726	23,912,923	66,423,337	52,812,780
All other taxes†	1,031,393,949	409,186,085	362,201,559	167,519,543	277,568,001	113,725,749	391,624,389	127,940,793

---

d Decrease, deficit, or other reverse items.

‡ Represents an average of the mileage reported at the close of each month within the period.

* General Account VIII. Transportation for Investment—Cr. canceled effective January 1, 1942.

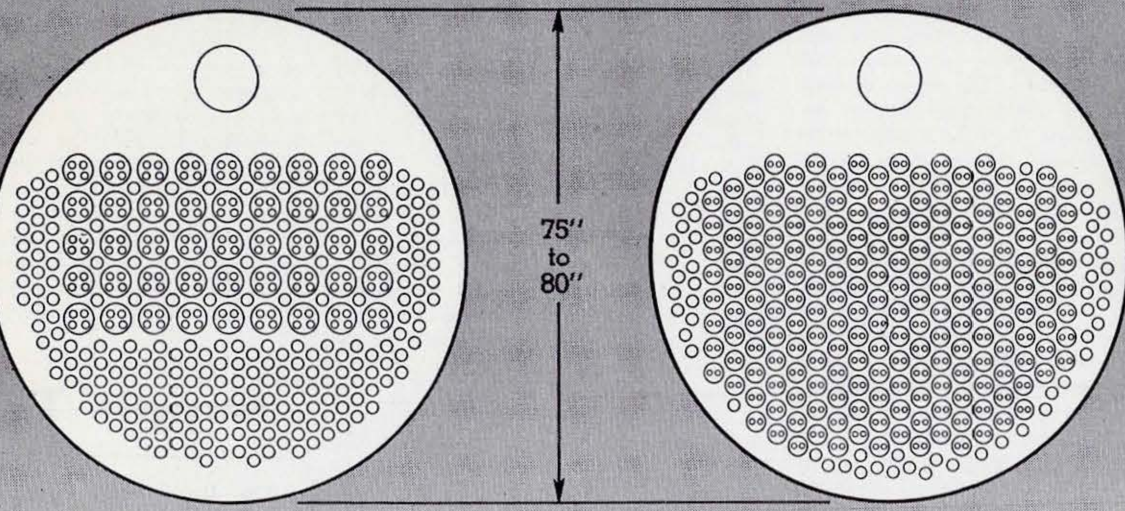
** Includes Federal income tax, surtax and excess profits tax as follows: United States, $46,129,243; Eastern District, $1,309,701; Pocahontas Region, $4,972,622; Southern Region, $8,304,387; and Western District, $31,542,533, for December 1942.

† Includes Federal income tax, surtax and excess profits tax as follows: United States, $759,055,722; Eastern District, $244,280,764; Pocahontas Region, $90,833,454; Southern Region, $130,761,287; and Western District, $293,180,217, for the 1942 period.

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

News Department continued on next left-hand page

LARGE FLUE SUPERHEATER *or* SMALL FLUE SUPERHEATER?



The Answer

ITEM	Large Flue Superheater	Small Flue Superheater	INCREASE	INCREASE Per Cent
Tube and flue heating surface	4,200 sq. ft.	4,641 sq. ft.	441 sq. ft.	10.5
Superheating surface...............	1,164 sq. ft.	2,088 sq. ft.	924 sq. ft.	79.3
Gas area..................................	1,337 sq. in.	1,374 sq. in.	37 sq. in.	2.76
Steam area...............................	51.3 sq. in.	67.06 sq. in.	15.76 sq. in.	30.7

SMALL FLUE BOILERS WITH ELESCO SUPERHEATERS PROVIDE

INCREASED CAPACITY WITH THE SAME BOILER DIAMETER.

A-1562

ELESCO

THE
SUPERHEATER
COMPANY

SUPERHEATERS • FEEDWATER HEATERS
AMERICAN THROTTLES • STEAM DRYERS
EXHAUST STEAM INJECTORS • PYROMETERS

Representative of
AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street, NEW YORK
122 S. Michigan Blvd., CHICAGO
• • •
Montreal, Canada
THE SUPERHEATER COMPANY, LTD.

Delaware River section of the Atlantic Intracoastal Waterway. The bill would call for a 27-ft. waterway "from the vicinity of Bordentown, N. J., to the vicinity of Sayreville, N. J."

Montana Intrastate Rates

The Interstate Commerce Commission in a report by Commissioner Porter has found that unjust discrimination against interstate commerce results from the refusal of the Board of Railroad Commissioners of Montana to permit the application of the Ex Parte 148 increase to intrastate rates on livestock of all kinds, dried beet pulp, saw logs, with certain exceptions, stulls and mining lumber. The same decision, which is in No. 28855, finds that no discrimination results from the refusal of the Montana authorities to authorize the increases on sugar beets, beet-sugar molasses, limerock, wet beet plup, and sugar beet seed.

The commission's findings are "without prejudice to the conclusions which may be reached in Ex Parte No. 148 which has been reopened." As is usual in such proceedings, no order was entered, the Montana commission being given until March 25 to notify the I.C.C. that it will permit promptly the increases required.

Commissioner Johnson, concurring in part, objected to the failure to require increases as to all the commodities involved. Commissioner Splawn, dissenting in part, objected to the increases required. He thought that where a state has approved for intrastate application substantially all of an interstate increase, the I. C . C. should not act without "convincing evidence" that the exceptions comprise "a direct obstruction to or a real discrimination against interstate commerce."

Truck Spring Snubbers Are Excessively Loaded

A circular letter issued recently by the A. A. R. Mechanical division, calls attention to reports that some truck spring snubbers recently placed in service are failing due to being applied to spring clusters where the free height of the standard truck springs is reduced to a considerable extent. These reports have been considered by the Committee on Car Construction and the Joint Committee on Helical Springs for Freight Cars.

It is stated in the circular letter that where snubbing devices are used with old springs (which may be corroded and have taken a considerable permanent set), an undue burden is placed on the snubbing devices, which may be the cause of their early failure.

When spring snubbers are applied, it is recommended that the entire spring cluster be checked carefully to insure a minimum average free height of 8 in. for springs remaining in each nest. Springs badly corroded or pitted should be replaced. Also, if the spring at the preferable location for the snubbing device has a greater free height than any of the other springs in the cluster, it should be relocated in place of the spring having the lowest free height.

Rejection of springs with excessive set (denoting fatigue and with little service life remaining) at the time of the snubber applications should greatly reduce the damage caused by broken springs, as well as the expense and delay involved in subsequent replacements, according to the letter which was signed by Executive Vice-Chairman V. R. Hawthorne.

Club Meetings

The Traffic Club of Philadelphia will hold its inaugural dinner at 6:30 p. m. on March 8 at the Benjamin Franklin hotel. The newly elected officers are: President, Harry C. Hoffa, manager traffic division, the Atlantic Refining Co.; first vice-president, Joseph A. Fisher, freight traffic manager, Reading; second vice-president, R. F. Hogan, traffic manager, Warner Co.; historian, C. N. Hale, general agent, Chicago & North Western.

The New York division of the Railroad Enthusiasts, Inc., will meet at 7:45 p. m. on March 26 in Room 2728 Grand Central Terminal, New York City. "Steam Distribution Systems" on railroad locomotives will be the title of the address to be delivered by M. H. Roberts, engineer of the Franklin Railway Supply Co.

The Traffic Club of Newark (N. J.) will hold an "Old Timers" night at 8 p. m. on March 1 at the Robert Treat hotel. The O. W. I. film, "Know Your Enemy—Japan," will be shown. At 7 p. m. on the same evening the club will hold a forum with James J. Johnston, district manager of the Bureau of Motor Transport, O. D. T., as speaker. The subject will be the "Purpose of the Joint Information Office and the Service That Can Be Rendered to Common, Contract and Private Carriers." The annual dinner dance of the club will be held on May 15 at the Robert Treat hotel.

The Indianapolis Car Inspection Association will meet at 7 p. m. on March 1 at the Union station, Indianapolis.

The Western Railway Club will meet at 6:30 p. m. on March 15 at the Hotel Sherman. J. D. Rezner will present an address entitled "Improvements in Freight Cars," followed by a dissertation from the speakers table by Messrs. Wink, Moody, Bryan and Doppe.

On Time Record of Chicago L. C. L. Still Good

Despite the difficulties of wartime transportation, l. c. l. railroad freight out of Chicago in 1942 averaged 80.83 per cent on time at destination, according to a servey made by the Chicago Association of Commerce. This compares with an "on time record" of 90.77 per cent in 1941. A total of 349,038 cars of l. c. l. were forwarded in 1942, compared with 491,892 a year previous. Of the 268,132 cars on which actual performance records were available, 216,722 reached their destinations on schedule; 38,843 cars, or 14.48 per cent, were one day late; and 12,567, or 4.69 per cent, were delayed in transit longer than 24 hours.

Just as the number of l. c. l. cars used were fewer than a year before, so was the list of destinations regularly served, the survey shows. In 1942, under curtailments imposed by the Office of Defense Transportation, cars were loaded in Chicago under regular schedules for 367 destinations. At the close of 1941 such service had been maintained to 661 destinations. During 1942 a daily average of 1,137 cars were operated, whereas during 1941 the daily average was 1,602 cars.

The reduction of 142,854 cars, or 29 per cent, loaded at Chicago during 1942, as compared to 1941, and the reduction in the number of destinations served by through service, were brought about by regulations of the Office of Defense Transportation which required cars containing l. c. l. merchandise to be loaded to a minimum of 6 tons effective May 1, 1942; to a minimum of 8 tons effective July 1, 1942; and to a minimum of 10 tons effective September 1, 1942. No such loading restrictions were in effect during the year 1941, the report states. These factors, together with increased volume of traffic, including the heavy movement of troops, are responsible for the reduction in the high percentage of cars normally reaching their destination on schedule.

Supply Trade

The Bullard Company has won the Army-Navy production award for the second time, giving it the right to add a star to its original "E" flag.

The Minneapolis-Honeywell Regulator Company has been awarded the Army-Navy "E" with a white star for continued "meritorious services on the production front."

The Caterpillar Tractor Company, Peoria, Ill., has been selected to receive the Army-Navy "E" award for outstanding achievement in the production of war material. Presentation of the burgee will be made on March 12.

R. E. Kunde, traffic representative at Tulsa, Okla., for the **Bethlehem Steel Company**, has been transferred to Lackawanna, N. Y., as district traffic manager for the Buffalo, N. Y., district. **E. D. Haugh**, formerly with Bethlehem's traffic organization in Chicago, succeeds Mr. Kunde as traffic representative at Tulsa.

The H. K. Porter Company, Inc., Pittsburgh, Pa., has been authorized by the Defense Plant Corporation to provide equipment for a plant in Pennsylvania at an approximate cost of $100,000. The new facilities will be operated by the Porter Company, with title remaining with the DPC.

Ceremonies dedicating the blowing in of a blast furnace at the Morgan Park plant of the **American Steel & Wire Company**, at Duluth, Minn., were held on February 24. Following the blowing in of the furnace, officers of the Defense Plant Corporation, the War Production Board and the American Steel & Wire Company witnessed a cast of pig iron. The furnace, which was moved from Joliet, Ill., to Duluth last summer, has been modernized with funds provided by the Defense Plant Corporation and now has a capacity of approximately 800 tons of pig iron daily. The furnace replaces one dismantled and scrapped several years ago.

The Army-Navy "E" burgee for excellent performance in fulfilling naval contracts was presented to the plant of the **Electro-Motive Division of General Motors Corporation** at LaGrange, Ill., on February 12. After an introductory speech by F. H. Prescott, general manager, Rear Admiral H. G. Taylor of the United States Navy presented the "E" flag, which was accepted by H. L. Hamilton, vice-president of the company. Lt. Col. E. H. Bowman of the United States Army presented Army-Navy "E" pins to the employees. Music was furnished by the United States Navy Band stationed at the Navy Pier in Chicago.

OBITUARY

A. A. Hale, vice-president of the Griffin Wheel Company, Chicago, and director of material procurement of the American Steel Foundries, died in Coral Gables, Fla. on February 21 of a heart ailment.

Colonel Clinton Roy Dickinson, former president of the Printers Ink Publishing Company, and since January, 1942, executive assistant to Major General Lewis B. Hershey, director of Selective Service, died February 23. He was 55 years of age. Colonel Dickinson was graduated from Princeton University in 1909. From 1910 to 1915 he served on the staff of Cosmopolitan magazine and, after a year with Puck magazine, joined the New York Times in 1916 and the Frank Presbrey Company, advertising agents, in 1917. During the first World War he served in the intelligence division, office of the Chief of Staff, and later was a member of President Harding's unemployment conference and a director of the Council for Democracy. He was associate editor of Printers Ink and Printers Ink Monthly from 1919 to 1933 and was elected president of the Printers Ink Publishing Company in 1933. He left this position in January, 1942, to enter the Army.

TRADE PUBLICATIONS

WARTIME CONSERVATION. — A new 96-page booklet just published contains recommendations by engineers of the Westinghouse Electric & Manufacturing Co. for selecting, applying and using electrical equipment so as to achieve the best possible output with the greatest saving in critical materials. The book covers up-rating of motors, thermal temperature loading of transformers, industrial network systems, line equipment and materials; and gives tips on saving and salvaging materials. All recommendations in this new book are in line with policies suggested by the WPB for the conservation of critical materials.

Equipment and Supplies

WPB Releases for First Half of 1943 Now Total 19,971 Cars

Releases are reported to have been granted by the War Production Board covering the building of 1,071 additional cars of the 20,000 authorized by the board for construction during the first six months of 1943. A detailed list showing the allocation, by railroads and builders, of 18,900 cars previously released was published in the *Railway Age* of February 20, page 417, and the new releases accordingly leave but 29 of the 20,000 cars as yet unallocated.

The latest releases, which should be added to last week's list, authorized the building of 630 composite hopper cars of 50 tons' capacity for the Chesapeake & Ohio by the General American Transportation Corporation; 440 composite gondola cars of 50 tons' capacity for the Elgin, Joliet & Eastern by the Ralston Steel Car Company; and one 187-ton flat car by the Pennsylvania in its own shops. A summary of the 19,971 cars released to date under the War Production Board's program for 1943, by types and builder, is set forth in the accompanying table.

Summary Table of WPB Authorizations

	Contract Car Builders	Railroad Shops	Total
Hopper	8,355	1,150	9,505
Gondola	4,048	2,735	6,783
Ore	2,100	....	2,100
Flat	725	701	1,426
Tank	120*	....	120
Special Box	37*	....	37
	15,385	4,586	19,971
Unallocated	29	....	29
Total	15,414	4,586	20,000

* Ordered by industrial companies.

THE MISSOURI PACIFIC has been granted permission by the District Court to spend $8,566,345 for improvements to its roadway and equipment. Of this total, $7,216,830 will be spent on the Missouri Pacific; $693,765 on the New Orleans, Texas & Mexico; $530,820 on the International Great Northern; and $124,930 on the Missouri-Illinois.

LOCOMOTIVES

C. & O. Buys 40 Steam Locomotives

The Chesapeake & Ohio is reported to have placed an order for 40 steam road locomotives of 2-8-4 wheel arrangement with 21,000-gal. tenders with the American Locomotive Company. The inquiry for 25 of these locomotives, which was later increased to 40, was reported in the *Railway Age* of February 6.

THE NEW YORK, CHICAGO & ST. LOUIS has issued inquiries for the purchase of 15 steam road locomotives of 2-8-4 wheel arrangement.

A. C. F. TANKS FIRST INTO TRIPOLI.—According to British Information Services, "Four American-built light tanks were the first vehicles of the victorious British Eighth Army to lumber into Tripoli when the capital of Italy's African empire fell on January 22. The four tanks, manned by officers and men of Britain's famous Eleventh Hussars regiment, were 'Jeb Stuarts' made by the American Car & Foundry Co., of Berwick, Pa." A. c. f. records identified these tanks from the numbers furnished by British Information Services as tanks which were delivered in the late summer of 1941.

Financial

ALABAMA, TENNESSEE & NORTHERN.—*Reorganization Proceedings.*—The amended plan for this company's reorganization (reported in *Railway Age* of March 21, 1942, page 630) having been approved by the court, the Interstate Commerce Commission, Division 4, on February 24 formally submitted the plan to holders of prior lien bonds, the Reconstruction Finance Corporation, and the Treasury Department for acceptance or rejection under the provisions of Section 77 (e) of the Bankruptcy Act.

ATLANTIC COAST LINE.—*Acquisition.*—Division 4 of the Interstate Commerce Commission has authorized this company to purchase the property of the Belt Line Railway Company (Montgomery, Ala.), subject to agreements giving the Gulf, Mobile & Ohio trackage rights thereon. All Belt Line securities are owned by the A. C. L., and purchase will be effected by surrender and cancellation of outstanding bonds.

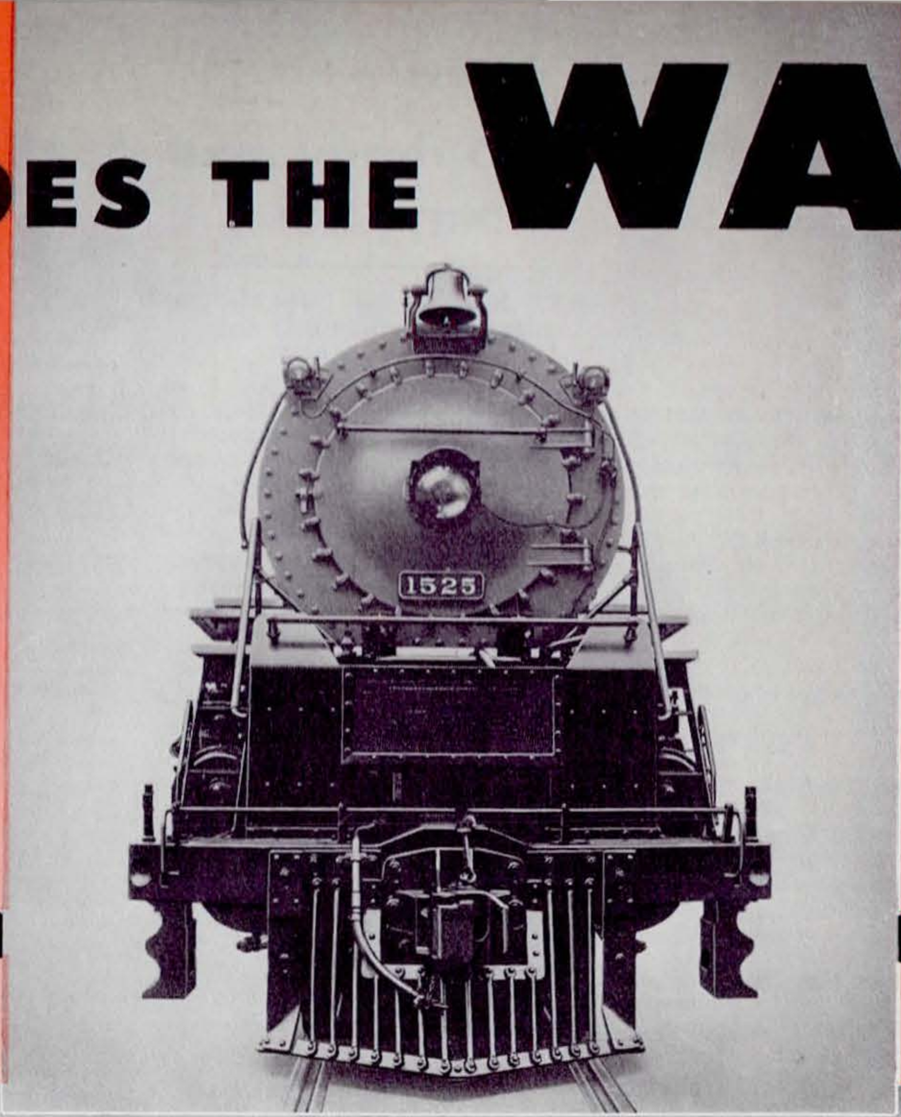
DELAWARE, LACKAWANNA & WESTERN.—*Expects Tax Agreement.*—At the annual meeting on February 23, William White, president of the Delaware, Lackawanna & Western, told stockholders that an agreement was expected soon between the railroad and certain of its leased roads with respect to the lessor roads' income tax situation which has prevented the D. L. & W. from paying the rental due to stockholders of these lines. Questioned about dividends on D. L. & W. stock, Mr. White said the big problem was to improve the railroad's financial structure and to reduce fixed charges. He also pointed out that the railroad was confronted with serious tax problems resulting from unpaid taxes in New Jersey. Commenting on the increases in rates and fares allowed last year, incident to increases in wages to organized labor, Mr. White said that the rate increases had fallen short by $860,000 in meeting the Lackawanna's increased expense incident to wage increases and vacations with pay under the award granted by the War Labor Board.

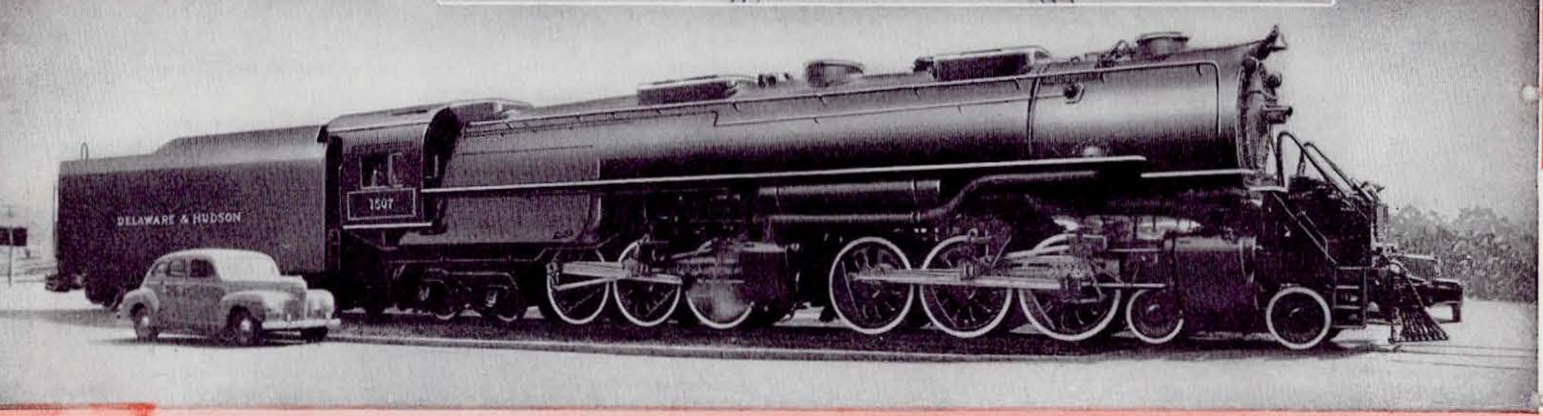
ERIE.—*Acquisitions.*—This road and the Greenwood Lake, the Caldwell and the Roseland have filed with the Interstate Commerce Commission a joint application seeking approval of the purchase by the Erie, as reorganized, of the properties of the other three. The Caldwell and Roseland are controlled by the Greenwood Lake,

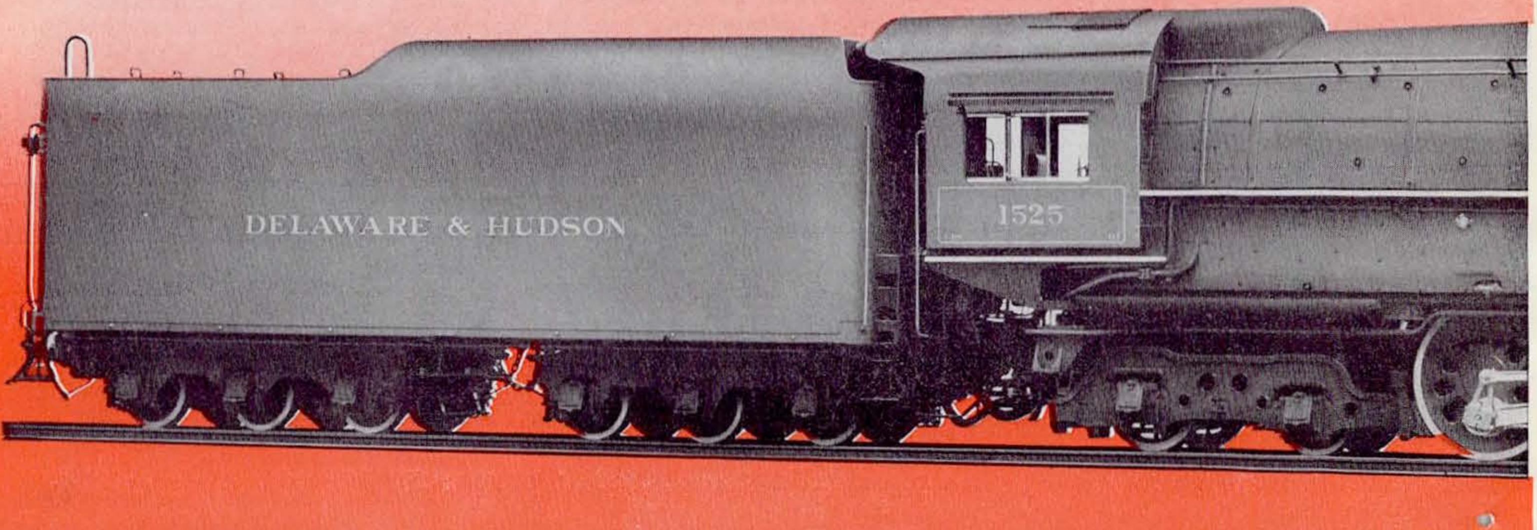
News Department continued on second left-hand page

UP GOES THE WAR

FOR VICTORY BUY
WAR BONDS
AND STAMPS




DELAWARE & HUDSON
1507


DELAWARE & HUDSON
1525

TIME PACE

ON THE

DELAWARE & HUDSON

"The D&H"

Fifteen more modern high-powered articulated freight locomotives have been recently delivered to the Delaware & Hudson—making a fleet of 35 of these high-speed, heavy-tonnage locomotives which ALCO has delivered to this road since July, 1940.

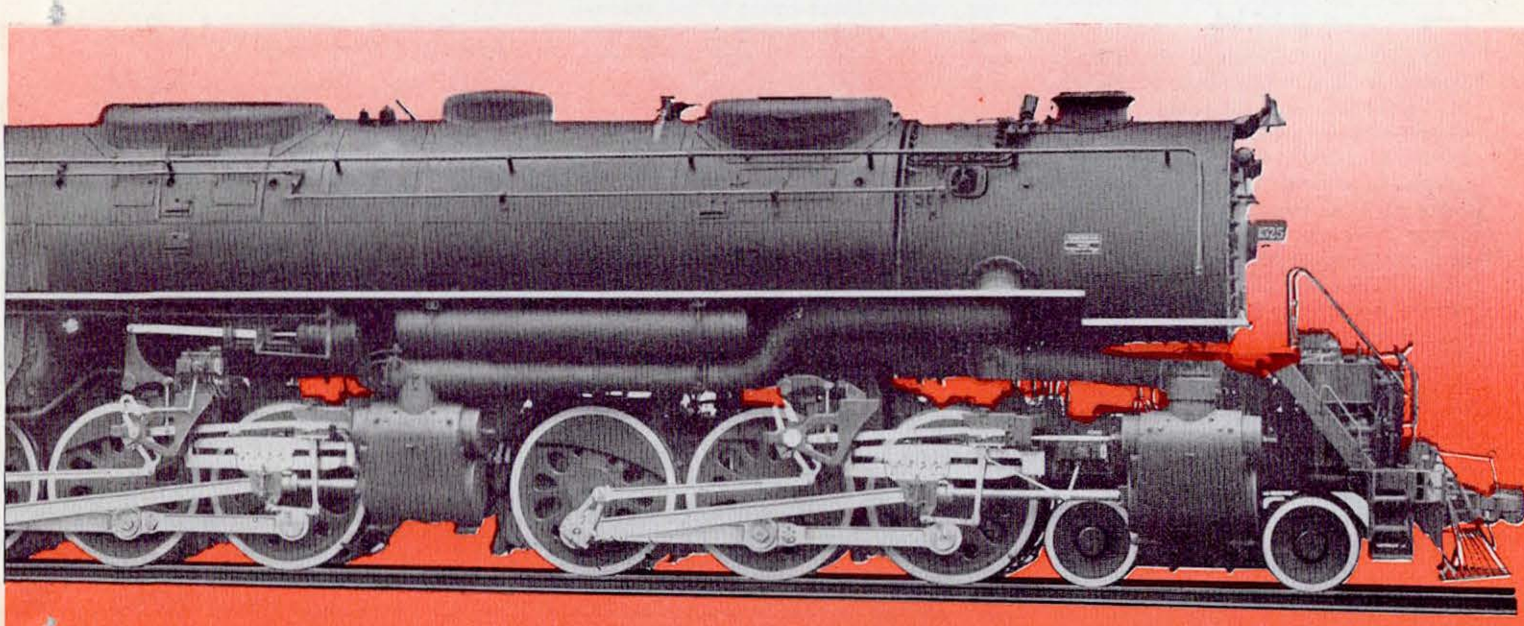
Locomotive Characteristics

Weight on Drivers	406,500 lb.
Weight of Engine	597,000 lb.
Cylinders (Four)	20½ x 32 ins.
Diameter of Drivers	69 ins.
Boiler Pressure	285 lb.
Tractive Power	94,400 lb.
Tender Capacity—Water	22,500 gals.
Tender Capacity—Fuel	26 tons

AMERICAN LOCOMOTIVE

Manufacturers of Mobile Power

Steam, Diesel and Electric Locomotives, Marine Diesels,
Tanks, Gun Carriages and other Ordnance



which was controlled and leased by the Erie under a lease disaffirmed December 12, 1941.

INTERNATIONAL RAILWAYS OF CENTRAL AMERICA.—*Annual Report.*—The 1942 annual report of this company shows net income, after interest and other charges, of $1,066,632, as compared with net income of $955,439 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
RAILWAY OPERATING REVENUES	$6,200,530	+$583,252
Maintenance of way and structures	1,045,559	+113,300
Maintenance of equipment	805,815	+117,984
Transportation	1,272,266	+192,386
TOTAL OPERATING EXPENSES	3,760,694	+463,460
NET REVENUE FROM OPERATIONS	2,439,836	+119,792
Railway tax accruals	414,948	+50,005
Railway operating income	2,024,888	+69,787
Net Rents—Cr.	1,950	-3,762
NET RAILWAY OPERATING INCOME	2,026,838	+66,024
Other income	42,987	-4,679
TOTAL INCOME	2,069,825	+61,345
Interest on funded debt	1,001,633	-36,029
TOTAL FIXED CHARGES	874,456	-55,249
NET INCOME	1,066,632	+111,193
Disposition of net income:		
Dividend appropriations of income	375,000	-125,000
Income balance transferred to profit and loss	$691,632	+$236,193

NEW YORK, CHICAGO & ST. LOUIS.—*New Equipment Trust Issue.*—The New York, Chicago & St. Louis has asked for bids on a proposed $1,230,000 issue of 1943 equipment trust certificates maturing in 15 annual installments of $82,000 each, payable March 15 of each year beginning with 1944. Proceeds from the sale will be used to finance in part the purchase of 10 freight locomotives of 2-8-4 wheel arrangement with 22,000-gal. tenders, now being built at a cost of about $1,567,485.

NEW YORK, CHICAGO & ST. LOUIS.—*Equipment Trust Certificates.*—This road has applied to the Interstate Commerce Commission for authority to assume liability for $1,230,000 of equipment trust certificates to be issued in connection with the financing of its purchase of 10 locomotives of the 2-8-4 type with 22,000-gal. tenders at a total cost of $1,567,485. The certificates will be dated March 15, 1943, and will mature in 15 annual installments of $82,000 each from March 15, 1944, to March 15, 1958. The annual interest rate is not to exceed three per cent, and the issue will be sold under competitive bidding, no bid to be less than 99 per cent of par.

NEW YORK, SUSQUEHANNA & WESTERN.—*New Trustee.*—Federal Judge William F. Smith at Newark, N. J., on February 19 said he would consider the appointment of Henry K. Norton, executive officer of the New York, Susquehanna & Western, as a reorganization trustee of the railroad, to replace Walter Kidde, who died February 9.

SEABOARD AIR LINE.—*Purchases of Underlying Bonds.*—A report filed with the Securities and Exchange Commission on February 16 by the Seaboard Air Line shows the railroad purchased during January $787,000 principal amount of Seaboard-All Florida first mortgage 6 per cent bonds, series A and B, matured August 1, 1935. The report indicated there were $9,058,000 of these bonds still outstanding at January 31. In a previous report to the S. E. C. on January 19 the railroad had reported purchases aggregating $9,504,000 principal amount of the bonds as of December 31, 1942. Purchases of the bonds until January 31 at a flat price of $160 for each $1,000 bond was authorized by the United States district court at Norfolk, Va., on November 17, 1942. (See *Railway Age* of November 28, 1942, page 905, and of January 16, page 227.)

The railroad also reported purchases during January of $394,000 principal amount of first mortgage bonds of the Raleigh & Gaston, leaving $62,000 of the issue outstanding, and of $307,000 principal amount of first mortgage bonds of the Raleigh & Augusta Air Line, leaving $28,000 of that issue outstanding. In its previous report to the S. E. C. the railroad reported purchasing $744,000 of Raleigh & Gaston bonds and $665,000 of Raleigh & Augusta Air Line bonds as of December 31, 1942. There were originally outstanding $1,200,000 of the Raleigh & Gaston bonds and $1,000,000 of the Raleigh & Augusta bonds. Court authorization to purchase these bonds until January 15 (later extended to January 31) at $900 for each $1,000 bond, plus accrued interest thereon, was received on December 19. (See *Railway Age* of December 26, 1942, page 1045.)

SOUTHERN.—*Declares Common Dividend.*—The Southern on February 23 resumed dividends on its common stock with a declaration of $2 per share on 1,298,200 shares outstanding, payable April 1. This is the first common disbursement by the railroad since 1931. Dividends of $5 per share were paid by the Southern in each of the years 1923-31, inclusive.

SOUTHERN PACIFIC.—*Annual Report.*—The preliminary annual report of this company for the year ended December 31, 1942, shows net income, after interest and other charges, of $80,282,856, an increase of $45,555,986 as compared with net income in 1941. Selected items from the consolidated income account follows:

	1942	Increase or Decrease Compared with 1941
RAILWAY OPERATING REVENUES	$472,748,816	+$174,962,490
Maintenance of way	39,870,845	+9,707,186
Maintenance of equipment	67,983,957	+19,977,178
Transportation	136,997,561	+31,855,985
TOTAL OPERATING EXPENSES	272,622,673	+68,637,047
Operating ratio		
NET REVENUE FROM OPERATIONS	200,126,142	+106,325,443
Railway tax accruals	76,844,995	+55,416,070
Equipment and joint facility rents—Net	20,779,337	+5,844,865
NET RAILWAY OPERATING INCOME	102,501,810	+45,064,508
Non-operating income	7,149,600	-849,858
TOTAL INCOME	109,651,409	+44,214,650
Rent for leased roads and equipment	55,935	-2,166
Interest on funded debt	28,469,508	-446,168
TOTAL FIXED CHARGES	28,680,701	-827,038
NET INCOME	$80,282,856	$45,555,986

WABASH.—*Declares Initial Dividend.*—Directors of the Wabash have voted a common dividend of $1 per share, the first payment since the company's reorganization, payable April 23. The railroad reported the acquisition in December, 1942, and January, 1943, of $867,000 of series A income 4 per cent bonds due 1981 and of $687,000 of series B income 4¼ per cent bonds due 1991, in part for sinking fund purposes and in part for debt retirement.

Average Prices Stocks and Bonds

	Feb. 23	Last week	Last year
Average price of 20 representative railway stocks..	35.81	30.74	28.22
Average price of 20 representative railway bonds..	72.43	71.84	65.94

Dividends Declared

Delaware & Bound Brook.—$2.00, quarterly, payable March 10 to holders of record March 9.

Erie & Pittsburgh.—7 Per Cent Guaranteed, 87½c, quarterly (Less 7½c Pennsylvania State tax), payable March 10 to holders of record February 17.

Pullman, Inc.—(Increased) 50c, payable March 15 to holders of record February 26.

Reading.—Second Preferred, 50c, quarterly, payable April 8 to holders of record March 18.

Southern.—(No par. Payable out of surplus net profits for year 1942.) $2.00, payable April 1 to holders of record March 8.

Wabash.—Common (Initial), $1.00; 4½ Per Cent Preferred, $4.50, both payable April 23 to holders of record March 31.

Abandonments

"Superfluous branches we lop away, that bearing boughs may live."

CHICAGO GREAT WESTERN.—Division 4 of the Interstate Commerce Commission has authorized this company to abandon the 1.64-mile terminal portion of a branch line within the corporate limits of Winona, Minn.

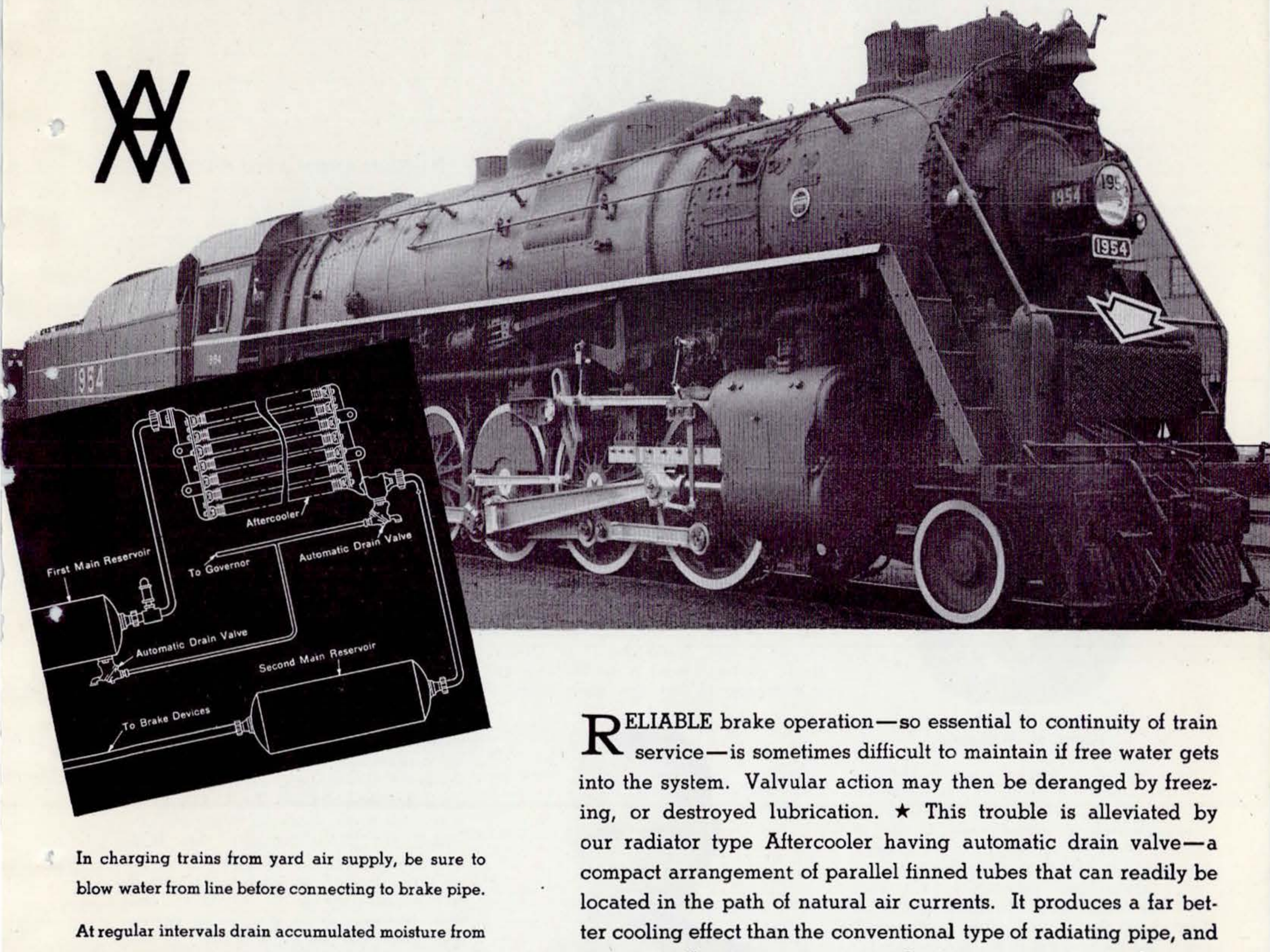
DULUTH, MISSABE & IRON RANGE.—Division 4 of the Interstate Commerce Commission has authorized this company to abandon its branch from a point near Culver, Minn., to Eklund, 5.04 miles.

PENNSYLVANIA. — The Western Allegheny, controlled by this company through ownership of a majority of its capital stock, has been authorized by Division 4 of the Interstate Commerce Commission to abandon a part of its main line from Dewey, Pa., to Brady's Bend, about 1 mile.

News Department continued on next left-hand page

DRY AIR is a Help in *Maintaining* *Satisfactory* BRAKE PERFORMANCE

. . . achieved with the *Aftercooler*



RELIABLE brake operation—so essential to continuity of train service—is sometimes difficult to maintain if free water gets into the system. Valvular action may then be deranged by freezing, or destroyed lubrication. ★ This trouble is alleviated by our radiator type Aftercooler having automatic drain valve—a compact arrangement of parallel finned tubes that can readily be located in the path of natural air currents. It produces a far better cooling effect than the conventional type of radiating pipe, and automatically ejects precipitated moisture every time the compressor governor operates. ★ On hundreds of locomotives, the Aftercooler is demonstrating its merits as an effective means to assure dry air for the brake system. It promises distinct advantages for YOUR new motive power also . . . In the meantime . . .

These suggestions may be helpful.

In charging trains from yard air supply, be sure to blow water from line before connecting to brake pipe.

At regular intervals drain accumulated moisture from main reservoir, filters, and dirt collectors to prevent its reabsorption into the system.

Do not let gummy dirt accumulate on conventional radiating pipe to reduce its normal cooling effect, and be sure no obstruction prevents free circulation of air around coils.

WESTINGHOUSE AIR BRAKE CO.

WILMERDING, PENNSYLVANIA

Railway Officers

EXECUTIVE

Edgar M. Whanger, whose promotion to assistant to the president of the Pere Marquette, with headquarters at Detroit, Mich., was announced in the *Railway Age* of February 20, was born on August 29, 1899, at Fort Spring, W. Va., and obtained his college education at Washington and Lee University, Lexington, Va., graduating in 1919. He first entered railway service in March 4, 1912, with the Chesapeake & Ohio and served with this company intermittently while attending school, as a messenger, timekeeper and accountant in the transportation, mechanical and stores department. In July, 1921, he became a machinist apprentice, in which capacity he served at Hinton, W. Va., and Clifton Forge, Va., until September, 1925, when he became a machinist at Huntington, W. Va. In the following month he was appointed mechanical inspector of locomotives and other equipment on the Hocking Valley (part of the C. & O.) at Columbus, Ohio. In September, 1929, Mr. Whanger was assigned to special work for the C. & O., the H. V. and the P. M., with headquarters at Cleveland, Ohio, remaining in this capacity until February 1, 1930, when he was named special representative in the office of the vice-president, maintenance and operation, of the P. M. at Detroit. He was appointed assistant to the vice-president in May, 1937, holding that position until his new appointment, effective February 1.

Edgar M. Whanger

Edward M. Thomas, whose election as vice-president of the Chesapeake & Ohio, the New York, Chicago & St. Louis (Nickel Plate), and the Pere Marquette was reported in the *Railway Age* of February 20, was born at Richmond, Va., on May 31, 1879, and entered railroad service on April 1, 1897, as a clerk of the C. & O. at Clifton Forge, Va. In 1900, he was advanced to storekeeper with the same headquarters. During the next twelve years he served as a clerk in several departments and, in 1913, he was appointed a member of the Valuation committee. Five years later he was promoted to general auditor of corporate accounts, with headquarters at Richmond, Va. On March 1, 1920, Mr. Thomas was advanced to comptroller, with the same headquarters, and on January 1, 1930, his jurisdiction as comptroller was extended over the Pere Marquette and in April, 1933, over the Nickel Plate. In the latter year Mr. Thomas transferred his headquarters to Cleveland, Ohio. Mr. Thomas was president of the Railway Accounting Officers Association in 1924 and 1925, and has been a member of the Accounting Advisory committee of the Association of American Railroads since 1934.

Edward M. Thomas

OPERATING

Henry G. Groves, whose appointment as superintendent of the North Shore-Maine division of the Railway Express Agency, with headquarters at Boston, Mass., was announced in the *Railway Age* of February 13, has had many years of express service experience in New England. After holding various positions, including agent, route agent and general agent at Brockton, Mass., Mr. Groves was assigned to the general manager's office in April, 1937. At the time of his recent promotion to superintendent at Boston, he was serving as district supervisor.

Henry G. Groves

Rowland E. Taylor, superintendent of the London division of the Canadian National, has been transferred to the Portage division, with headquarters at Winnipeg, Man., succeeding **A. A. Dunphy,** who has been transferred to the Schreiber division, with headquarters at Schreiber, Ont.

FINANCIAL, LEGAL AND ACCOUNTING

M. A. Bliss, general office assistant to the general manager of the Central Vermont, has been promoted to chief disbursements accountant, with headquarters as before at St. Albans, Vt. **P. L. Culver,** revenue accountant, has been promoted to revenue and joint facility accountant, with headquarters as before at St. Albans.

PURCHASES AND STORES

In the *Railway Age* of February 20, the name of **E. J. Leonard,** recently promoted to assistant general storekeeper of the Chicago & North Western, was incorrectly given as Henry J. Leonard.

Thomas F. Lynch, whose promotion to general storekeeper of the Minneapolis, St. Paul & Sault Ste. Marie was reported in the *Railway Age* of February 6, was born at Waseca, Minn., on May 18, 1886, and entered railroad service in August, 1904, in the stores department of the Chicago & North Western. He held various positions at several points on the road until 1911, when he became storekeeper of the Clyde Iron Works, Duluth, Minn. In August, 1911, Mr. Lynch returned to railroad service in the stores department of the Soo Line, being promoted to storekeeper, with headquarters at Minneapolis, in 1939, and holding that position until his new appointment.

Lloyd E. Huber, supervisor of priorities of the Baltimore & Ohio, has been furloughed to accept an appointment as a senior purchasing officer in the Procurement division of the Army Transportation Corps at Washington, D. C. **Calvin Coleman,** formerly Mr. Huber's assistant, has been promoted to supervisor of priorities to perform the duties connected with this office during Mr. Huber's absence. Mr. Huber entered the service of the Baltimore & Ohio in 1913. In 1917 he left to serve with the armed forces during the first World War, later returning to his work in the purchasing department of the Baltimore & Ohio. He was appointed supervisor of priorities in August, 1941. While in that position Mr. Huber was responsible for seeing that the company received the proper priority ratings on materials needed by it for repairs and maintenance.

TRAFFIC

L. V. Cooper, general agent of the New York, Ontario & Western, has been appointed assistant general freight agent, with headquarters as before at Kansas City, Mo.

Paul F. Zadach, traveling freight agent of the Chicago, Rock Island & Pacific, with headquarters at Waterloo, Iowa, has been

News Department continued on next left-hand page

HSGI
Service
in
Diesel
Engines

REDUCES REPLACEMENTS

THE quality of the wearing materials inside the cylinders plays a very important part in the availability, efficiency, fuel consumption and maintenance cost of your Diesel power.

Liners, pistons and packing rings made of HUNT-SPILLER *Air Furnace* GUN IRON offer an economical solution of many cylinder problems.

The resistance of these HSGI Parts to frictional wear and high temperatures insures pressure tight operation for maximum periods between renewals. A few test applications will show the road to big savings.

HUNT-SPILLER MFG. CORPORATION
V. W. Ellet, *President* E. J. Fuller, *Vice-Pres. & Gen. Mgr.*

383 Dorchester Ave. *Office & Works* South Boston, Mass.
Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

HSGI
Reg. U. S. Trade Mark
Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Finished Parts
Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings, All Shapes
Light Weight Valves
Cylinder Liners and Pistons
for Diesel Service

Air Furnace **HUNT-SPILLER GUN IRON**

promoted to district passenger and freight agent at Rock Island, Ill., a newly-created position.

A. C. Low, assistant to general freight agent of the Atlantic Coast Line, has been appointed assistant general freight agent, with headquarters as before at Wilmington, N. C. **C. F. Theobald** has been appointed assistant to general freight agent at Wilmington. **T. K. Lynch,** assistant general freight agent, has been appointed assistant general passenger agent, with headquarters as before at Wilmington. **Geo. O. Davis** has been appointed assistant to general passenger agent at Wilmington.

L. Shannon Cook, whose promotion to general freight agent of the Chicago, Rock Island & Pacific with headquarters at Denver, Colo., was reported in the *Railway Age* of February 6, was born at St. Louis, Mo., on February 19, 1894, and entered railroad service on October 22, 1920, as city freight agent of the Rock Island at Denver. In June, 1924, he was promoted to general agent, with headquarters at El Paso, Tex., and on March 15, 1941, was advanced to assistant general freight agent, with headquarters at Denver, holding that position until his new appointment, effective February 1.

L. Shannon Cook

MECHANICAL

J. D. Clyde, general car inspector of the Texas & Pacific, who has been on a 10-month leave of absence, has returned to his duties at Dallas, Tex.

C. H. Bilty, who has retired as mechanical engineer of the Chicago, Milwaukee, St. Paul & Pacific, as noted in the February 20 issue of the *Railway Age*, was born in Milwaukee, Wis., on January 21, 1877. He was educated in public and private schools and entered railway service in 1894 as a machinist apprentice at the old West Milwaukee, Wis., shops of the Chicago, Milwaukee & St. Paul (now the C. M. St. P. & P.). From March, 1899, to March, 1900, he was a machinist; until September, 1907, a draftsman, and until April, 1910, chief draftsman. While serving as a draftsman Mr. Bilty attended night school for the study of mathematics. In April, 1910, he became mechanical engineer of the Milwaukee, and in April, 1918, was appointed mechanical engineer, Northwestern region, U. S. R. A. He returned to the Milwaukee as mechanical engineer on June 15, 1920. During the Spanish-American War Mr. Bilty served as an infantry private with the 4th Wisconsin Volunteers. He is a life member of the Association of American Railroads, Mechanical division, and a member of the American Society of Mechanical Engineers, Western Railway Club, Veteran Employees' Association, and Milwaukee Hiawatha Service Club.

C. H. Bilty

ENGINEERING AND SIGNALING

Walter R. Parvin, whose appointment as chief engineer, maintenance of way, of the Eastern region of the Pennsylvania, with headquarters at Philadelphia, Pa., was announced in the *Railway Age* of February 6, was born on March 15, 1892, at Wilkinsburg, Pa. Mr. Parvin, who received a B.S. degree in civil engineering from the University of Pittsburgh in 1915, entered the service of the Pennsylvania as a chainman on June 15, 1912. He served in the first World War, and upon his return to the employ of the Pennsylvania, he was appointed assistant supervisor-track, and subsequently became supervisor-track at Jersey City, N. J. Mr. Parvin served as division engineer at Cape Charles, Va., and at Chicago, and had been employed as engineer, maintenance of way, on the Southwestern division, at Indianapolis, Ind., prior to his recent promotion.

Walter R. Parvin

Charles W. Breed, whose promotion to engineer of standards of the Chicago, Burlington & Quincy was reported in the *Railway Age* of January 30, was born at Quincy, Ill., on December 17, 1878, and entered railroad service in May, 1898, as a clerk and timekeeper of the Burlington at Chicago. In 1903 he was promoted to draftsman, being advanced to chief draftsman in 1908, with the same headquarters. In 1915 he became office engineer, which position he held until May, 1917, when he entered military service. After serving in France as a member of the staff of the chief engineer, First Army, Mr. Breed returned to the Burlington in June, 1919, and in 1935 he was promoted to office engineer, system, holding that position until his new appointment, effective February 1.

Charles W. Breed

OBITUARY

Eugene F. Lee, assistant superintendent of the Railway Express Agency of Salt Lake City, Utah, died on February 16 at the Northern Pacific hospital, Tacoma, Wash.

Jesse Berthurem, assistant to the general superintendent of transportation of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, died suddenly on February 23, at Emporia, Kan.

Orris C. Ballou, comptroller of the Rutland at Rutland, Vt., whose death on February 11 was noted in the *Railway Age* of February 20, was born on May 14, 1894, at Rutland. Mr. Ballou entered the service of the Rutland on January 10, 1913, as a payroll clerk in the general accounting department. He subsequently served as voucher clerk, general bookkeeper, accountant and chief clerk to the comptroller. On September 1, 1941, he was appointed acting comptroller, and on April 1, 1942, became comptroller, which position he was holding at the time of his death.

HSGI
Service
in
Diesel
Engines

REDUCES REPLACEMENTS

THE quality of the wearing materials inside the cylinders plays a very important part in the availability, efficiency, fuel consumption and maintenance cost of your Diesel power.

Liners, pistons and packing rings made of HUNT-SPILLER *Air Furnace* GUN IRON offer an economical solution of many cylinder problems.

The resistance of these HSGI Parts to frictional wear and high temperatures insures pressure tight operation for maximum periods between renewals. A few test applications will show the road to big savings.

HUNT-SPILLER MFG. CORPORATION
V. W. Ellet, *President* E. J. Fuller, *Vice-Pres. & Gen. Mgr.*

Office & Works
383 Dorchester Ave. South Boston, Mass.
Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

HSGI
Reg. U. S. Trade Mark
Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Finished Parts
Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings, All Shapes
Light Weight Valves
Cylinder Liners and Pistons
for Diesel Service

HUNT-SPILLER
Air Furnace GUN IRON

promoted to district passenger and freight agent at Rock Island, Ill., a newly-created position.

A. C. Low, assistant to general freight agent of the Atlantic Coast Line, has been appointed assistant general freight agent, with headquarters as before at Wilmington, N. C. **C. F. Theobald** has been appointed assistant to general freight agent at Wilmington. **T. K. Lynch,** assistant general freight agent, has been appointed assistant general passenger agent, with headquarters as before at Wilmington. **Geo. O. Davis** has been appointed assistant to general passenger agent at Wilmington.

L. Shannon Cook, whose promotion to general freight agent of the Chicago, Rock Island & Pacific with headquarters at Denver, Colo., was reported in the *Railway Age* of February 6, was born at St. Louis, Mo., on February 19, 1894, and entered railroad service on October 22, 1920, as city freight agent of the Rock Island at Denver. In June, 1924, he was promoted to general agent, with headquarters at El Paso, Tex., and on March 15, 1941, was advanced to assistant general freight agent, with headquarters at Denver, holding that position until his new appointment, effective February 1.

L. Shannon Cook

MECHANICAL

J. D. Clyde, general car inspector of the Texas & Pacific, who has been on a 10-month leave of absence, has returned to his duties at Dallas, Tex.

C. H. Bilty, who has retired as mechanical engineer of the Chicago, Milwaukee, St. Paul & Pacific, as noted in the February 20 issue of the *Railway Age,* was born in Milwaukee, Wis., on January 21, 1877. He was educated in public and private schools and entered railway service in 1894 as a machinist apprentice at the old West Milwaukee, Wis., shops of the Chicago, Milwaukee & St. Paul (now the C. M. St. P. & P.). From March, 1899, to March, 1900, he was a machinist; until September, 1907, a draftsman, and until April, 1910, chief draftsman. While serving as a draftsman Mr. Bilty attended night school for the study of mathematics. In April, 1910, he became mechanical engineer of the Milwaukee, and in April, 1918, was appointed mechanical engineer, Northwestern region, U. S. R. A. He returned to the Milwaukee as mechanical engineer on June 15, 1920. During the Spanish-American War Mr. Bilty served as an infantry private with the 4th Wisconsin Volunteers. He is a life member of the Association of American Railroads, Mechanical division, and a member of the American Society of Mechanical Engineers, Western Railway Club, Veteran Employees' Association, and Milwaukee Hiawatha Service Club.

C. H. Bilty

ENGINEERING AND SIGNALING

Walter R. Parvin, whose appointment as chief engineer, maintenance of way, of the Eastern region of the Pennsylvania, with headquarters at Philadelphia, Pa., was announced in the *Railway Age* of February 6, was born on March 15, 1892, at Wilkinsburg, Pa. Mr. Parvin, who received a B.S. degree in civil engineering from the University of Pittsburgh in 1915, entered the service of the Pennsylvania as a chainman on June 15, 1912. He served in the first World War, and upon his return to the employ of the Pennsylvania, he was appointed assistant supervisor-track, and subsequently became supervisor-track at Jersey City, N. J. Mr. Parvin served as division engineer at Cape Charles, Va., and at Chicago, and had been employed as engineer, maintenance of way, on the Southwestern division, at Indianapolis, Ind., prior to his recent promotion.

Walter R. Parvin

Charles W. Breed, whose promotion to engineer of standards of the Chicago, Burlington & Quincy was reported in the *Railway Age* of January 30, was born at Quincy, Ill., on December 17, 1878, and entered railroad service in May, 1898, as a clerk and timekeeper of the Burlington at Chicago. In 1903 he was promoted to draftsman, being advanced to chief draftsman in 1908, with the same headquarters. In 1915 he became office engineer, which position he held until May, 1917, when he entered military service. After serving in France as a member of the staff of the chief engineer, First Army, Mr. Breed returned to the Burlington in June, 1919, and in 1935 he was promoted to office engineer, system, holding that position until his new appointment, effective February 1.

Charles W. Breed

OBITUARY

Eugene F. Lee, assistant superintendent of the Railway Express Agency of Salt Lake City, Utah, died on February 16 at the Northern Pacific hospital, Tacoma, Wash.

Jesse Berthurem, assistant to the general superintendent of transportation of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, died suddenly on February 23, at Emporia, Kan.

Orris C. Ballou, comptroller of the Rutland at Rutland, Vt., whose death on February 11 was noted in the *Railway Age* of February 20, was born on May 14, 1894, at Rutland. Mr. Ballou entered the service of the Rutland on January 10, 1913, as a payroll clerk in the general accounting department. He subsequently served as voucher clerk, general bookkeeper, accountant and chief clerk to the comptroller. On September 1, 1941, he was appointed acting comptroller, and on April 1, 1942, became comptroller, which position he was holding at the time of his death.

KERITE

in over three-quarters of a century of *continuous production,* has spun out a record of performance that is *unequalled* in the history of insulated wires and cables

THE KERITE INSULATED WIRE & CABLE COMPANY INC
NEW YORK CHICAGO SAN FRANCISCO

KING SANDER TRAP Nº 34

KING SANDER 34
THE U S METALLIC
PACKING CO
PHILA PA

Provision for automatic cleaning blast embodied within the trap. Adjustable for grade of sand, flow required and air pressure.

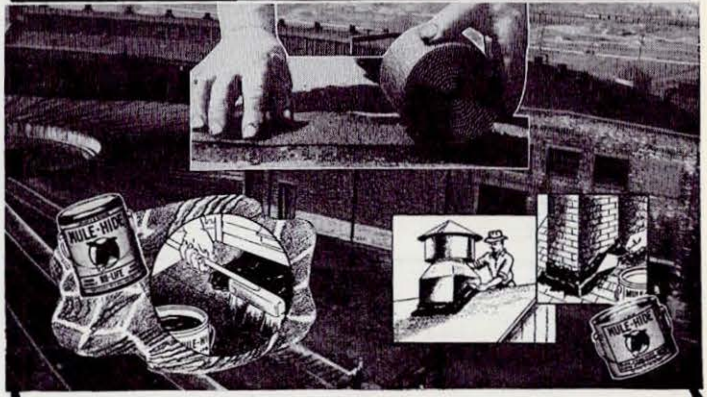
Single, Duplex and Triplex operating valves to suit varying arrangements.

THE U. S. METALLIC PACKING CO.
PHILADELPHIA, PENNSYLVANIA

Representatives in Canada
Jos. Robb & Co., Ltd., Montreal

READY to SHIP First Aid for Ailing Roofs

MULE-HIDE ROOFS
"NOT A KICK IN A MILLION FEET" Reg. U.S. Pat. Office



● Mule-Hide's tested and proved Roof Maintenance System will help you "Make-It-Do-for-the-Duration" with sure safety and budget-saving economy.

It includes Mule-Hide Nu-Life for re-waterproofing weathered, dried-out built-up or roll roofs — Stay-Tite Plastic for re-sealing flashings at vents, chimneys, skylights, monitor curbs, and valleys—and Roof Tape for repairing holes and cracks at points of stress or those caused by accidental damage.

SAMPLES AND PRICES GLADLY FURNISHED

★ For Roofs That Must Be Re-Covered—
MULE-HIDE COLD PROCESS
BUILT-UP ROOFS

Millions of square feet now in Railroad Service. Lower application cost than other built-up roofs. Simply applied by the hand tools of your own crews. Maintenance is easy, inexpensive, and infrequent. Engineering supervision furnished if you wish it.

WRITE FOR THIS MANUAL

It pictures and describes every step in the correct application of a Mule-Hide Cold Process Built-Up Roof. Good information to keep in your files.

MULE-HIDE COLD PROCESS BUILT-UP ROOFING

THE LEHON COMPANY
4425 SOUTH OAKLEY AVENUE
CHICAGO • • • • ILLINOIS
FACTORIES CHICAGO & WILMINGTON, ILL. MEMPHIS, TENN.
ASPHALT SHINGLES • ROLL ROOFING • WATERPROOFING SPECIALTIES • ROOF COATINGS • BUILT-UP ROOFS

GET TOGETHER DEPARTMENT

RAILROAD EDUCATIONAL SERVICE

For 45 years the Railroad Department — International Correspondence Schools—has been training ambitious railroad men the technique of their work. Nearly 300 railroads have agreements with the International Correspondence Schools to instruct their employees who are interested in technical training at reduced rates.

Courses in:

Railroad Apprentice Training
Air Brakes
Locomotive Firemen
Locomotive Engineer
Car and Locomotive Shop Work
Traffic Management
General Transportation
Accounting—Rate Clerk
Maintenance of Way
Transportation Salesmanship
Signal Work
Telephony and Telegraphy

We Specialize in Railroad Apprentice Technical Training Courses Covering the Work Done by Each Craft.

Free Booklet on Request

INTERNATIONAL CORRESPONDENCE SCHOOLS

Railroad Department,
A. C. Drynan, Gen. Mgr.,
Box 8816 SCRANTON, PA.

EDUCATIONAL

Educational Services for RAILROAD MEN

Maintenance of Way—
Mechanical—
Signal—
Operating—
Engineers and Firemen—
All Supervisors—

The Railway Educational Bureau
Omaha, Nebraska

WANTED!

16, 20, 24 or 30 cubic yard
AIR DUMP CARS
Any quantity, type, make or location. Also 10 to 30-ton Gas or Diesel Locos.

IRON & STEEL PRODUCTS, INC.
38 years' experience
13486 S. Brainard Ave.,
Chicago, Illinois
"*ANYTHING containing IRON or STEEL*"

Robert W. Hunt Company
ENGINEERS
Inspection—Tests—Consultation
All Railway Equipment
Structures and Materials
General Office:
175 W. Jackson Boulevard
CHICAGO
New York - Pittsburgh - St. Louis

FOR SALE

RAILROAD SCALES, CRANES, ETC.

One BUDA 80 ton railroad scale, 46 ft.; one Fairbanks-Morse type E 150 ton railroad scale, 50 ft.; one 15 ton Brownhoist locomotive crane. Also several overhead electric traveling cranes; railroad steam locomotives; relaying rails; spikes and bolts. Write for complete information.

SONKEN-GALAMBA CORP.
108 N. 2d St., Kansas City, Kans.

WANT TO PURCHASE

4 inch O. D. boiler tubes; steel pipe of all sizes, Valves; Fittings; Industrial plants; mills; railroads; trackage; etc.

WRITE, WIRE OR PHONE

SONKEN-GALAMBA CORP.

108 N. 2d St. Kansas City, Kans.
We buy and sell.
Get our quotations.

REPRESENTATION

Well established St. Louis supply firm with wide acquaintance among purchasing, mechanical, and shop departments of St. Louis Railroads, desires to handle one or two additional accounts for well established manufacturer. Best references. Address Box 599, Railway Age, 30 Church St., New York, New York.

FOR SALE

20, Hopper Cars, Double; 50-Ton
25, Box Cars, 40-0, 40-Ton
24, Refrigerator Cars, 36-0, 30-ton; for industrial usage
40, Flat Cars, 40-0, 40-Ton
10, Dump Cars, 24-yd., 30-Ton; one way dump; steel
50, Dump Cars, 12-yd., 30-Ton; air; Western

IRON & STEEL PRODUCTS, INC.
13486 S. Brainard Ave., Chicago, Ill.

POSITION OPEN

Service Engineers for Rail Supply Company; electrical experience essential. Training program will provide experience in company's equipment. Excellent opportunities including sales. Give full details past experience. Address Box 600, RAILWAY AGE, 30 Church St., New York, N. Y.

ASSISTANT SERVICE MGR. RAILWAY SUPPLIES

With experience in field service, to relieve Service Manager of various duties, to include: selection and assignment of personnel (100 men in field), correspondence, supplies, office records, investigations. Good opportunities, War and Peace time industry, essential activity. Location vicinity New York City. Strictly confidential. Address Box 603, RAILWAY AGE, 30 Church Street, New York, N. Y.

POSITION WANTED

Womanpower brings new personnel problems. Don't you need a woman to assist with them? Available on fair notice; woman with wide experience, including executive personnel work with women. Address Box 604, RAILWAY AGE, 30 Church Street, New York, New York.

Our Name on ALL of your Purchasing Department's Inquiry Lists for

FREIGHT CAR PARTS

MAY—
Insure Necessary Deliveries
Reduce Purchase & Maintenance Costs
Noticeably.

Some items actually available for immediate shipment:
2700 6 x 8 x 6 "D" Couplers

JOURNAL BOXES

3000	6 x 11, Andrews or Arch-Bar
2500	5 x 9, Andrews or Arch-Bar
2400	5 x 9, Vulcan
450	4¼ x 8, Vulcan
4000	5 x 9, Journal Box Wedges
100	5½ x 10, Journal Wedges, Drop Forged
500	Draft Springs, 7¾ x 9½, D.C. (New)
300	Bolsters, Cast Steel. Box Type.

TRUCK SIDE FRAMES

425	5½ x 10, Andrews
238	5½ x 10, Vulcan
32	5 x 9, Andrews
224	4¼ x 8, Vulcan

Also Bettendorf Company's final inventory of New Truck Frames—Bolsters—Center Sill Ends—Fillers—Plate Supports—Draft Lugs—Box Lids—Spring Planks, both formed and not formed—also their Spring Plank Dies.

Request our Stock Lists

WHAT HAVE YOU TO SELL OR TRADE FOR?

IRON & STEEL PRODUCTS, INC.
38 Years' Experience
13486 S. Brainard Ave. Chicago, Illinois
"*ANYTHING containing IRON or STEEL*"

FOR SALE

1—16x24" American 0-4-0 saddle tank locomotive.

1—20x26" American 0-6-0 switcher with separate tender.

2—21x26" American 0-6-0 saddle tank locomotives. Superheated.

20—40-ton cap. flat cars, 36′ 10″ long. Fishbelly center sills, steel end and side sills.

2—25 x 28 American 4-6-2 Road Engines; excellent condition.

WRITE WIRE PHONE

THOMAS F. CAREY CO., INC.
120 Liberty Street
New York, N. Y.
Telephone Barclay 7-1770

ELECTRIC LOCOMOTIVES

600 Series

Immediate Delivery

4—SERIES 600

Road Locomotives, 600 volt, A. C.—D.C. Westinghouse, 38″ driver wheels, weight on drivers—50 tons.

5—SERIES 700

Road Locomotives, 600 volt, A. C.—D.C. Westinghouse, 50″ driver wheels, weight on drivers—73.6 tons.

DULIEN STEEL PRODUCTS INC.
414 First Ave. South—Seattle, Wash.
Affiliate offices in: Portland, Los Angeles, San Francisco, Butte, New York, New Orleans

Keep 'em Rolling

PROTECT CAR UNDERFRAMES

WITH Carey FIBROUS

CAR CEMENT

The transportation of vital war goods is demanding the maximum of service from freight cars. Keep 'em moving. Carey Fibrous Car Cement will help do the job.

It protects car underframes against rust and corrosion. Reduces damage, delays, expense. Quickly and easily applied. Carey Fibrous Car Cement dries fast—provides maximum adhesion. Used by leading railroads and car manufacturing companies. Write Dept. 40 today for details.

THE PHILIP CAREY MANUFACTURING COMPANY

Dependable Products Since 1873 Lockland, Cincinnati, Ohio
IN CANADA: The Philip Carey Co., Ltd.
Office and Factory: Lennoxville, P. Q.

Pittsburgh Spring & Steel Co.

1417 Farmers Bank Building, Pittsburgh, Pa.

Makers of Elliptic and Spiral **SPRINGS** of Every Description

Carbon, Vanadium, Silico-Manganese Steels
Licensed manufacturers under patents for
"Coil-Elliptic" groupings

Washington, D. C.
824 Union Trust Bldg.

New York
3723 Grand Central Terminal

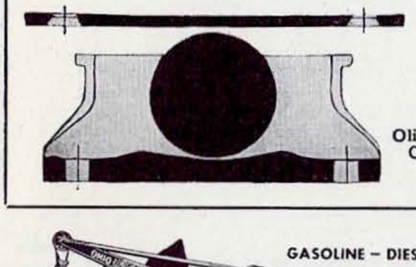
Chicago
1401 Fisher Bldg.

GOLD

VAPOR-STEAM-ELECTRIC

CAR HEATING SPECIALTIES

GOLD CAR HEATING & LIGHTING CO.
NEW YORK



STUCKI
SIDE
BEARINGS

Manufactured by
A. Stucki Co.
Oliver Bldg., Pittsburgh, Pa.
Canadian Representatives
The Holden Co., Ltd.
Montreal, Can.

GASOLINE – DIESEL

OHIO LOCOMOTIVE CRANES

STEAM – ELECTRIC

The OHIO LOCOMOTIVE CRANE Co. BUCYRUS OHIO

OKONITE

For 65 years the leader in rubber insulation and the pioneer and leader in the use of synthetics and other cable insulations to meet today's severe operating conditions on the railroads.

THE OKONITE COMPANY

Passaic, New Jersey Offices in principal cities

OKONITE
TAPE
Manson Tape

3225

Manufacturers of Insulated Wires and Cables Since 1878

CONSTRUCTION
Equipment

Free!

WRITE FOR THIS BOOK

CHECK THIS LINE FOR YOUR USE!

Get this 56 page catalog. Illustrates, describes and gives specifications on hundreds of machines, many of which are adapted for railroad use. CMC equipment is simple, sturdy, modernly engineered and economically priced. Catalog free. Write!

CONSTRUCTION MACHINERY CO.
Waterloo, Iowa

MIXERS • PUMPS • HOISTS
BATCHING & PLACING EQUIP.
SAWS • CARTS • BARROWS

Index to Advertisers

February 27, 1943

A

American Arch Company, Inc. 31
American Locomotive Company 7, 16, 32a, 32b
American Optical Company 20
American Steel Foundries 21

B

Baldwin Locomotive Works, Inc. 11, 12, 13
Bendix-Westinghouse Automotive Air Brake Co. 15
Bethlehem Steel Company 3

C

Carey Co., Inc., Thomas F. 36
Carey Mfg. Co., The Philip 37
Classified Advertisements 36
Climax Mo-lyb-den-um Company 17
Construction Machinery Co. 37

D

Dulien Steel Products, Inc. 36

E

Edgewater Steel Company 23
Edison Storage Battery Division, Thomas A. Edison, Inc. 18
Electro-Motive Division, General Motors Corp. ....Front Cover

F

Franklin Railway Supply Company, Inc. 30

G

General American Transportation Corporation 10
General Electric Company 7
General Railway Signal Co. ....Back Cover
General Steel Castings Corp. 19
Get Together Department 36
Gold Car Heating & Lighting Co. 37

H

Harbison-Walker Refractories Co. 31
Hunt Company, Robert W. 36
Hunt-Spiller Mfg. Corporation 34
Hyatt Bearings Division, General Motors Corporation 24

I

International Correspondence Schools 36
Iron & Steel Products, Inc. 36

K

Kerite Insulated Wire & Cable Co., Inc., The 35

L

Lehon Company, The 35
Lima Locomotive Works, Inc. 29
Locomotive Firebox Company 6

M

Magnus Metal Corp. 22

N

National Malleable and Steel Castings Co. 14

O

Ohio Locomotive Crane Co., The 37
Okonite Company, The 37
Oxweld Railroad Service Company, The 8, 9

P

Pittsburgh Spring & Steel Co. 37

R

Railway Educational Bureau, The 36
Railway Steel Spring Division, American Locomotive Company 16
Ryerson & Son, Inc., Joseph T. 40

S

Schaefer Equipment Company 2
Sonken-Galamba Corp. 36
Standard Railway Equipment Mfg. Company 28
Standard Steel Works Division of the Baldwin Locomotive Works, Inc. 11
Stucki Co., A. 37
Superheater Co., The 32
Symington-Gould Corp., The 41

U

Union Carbide and Carbon Corporation 8, 9
Union Switch & Signal Company 26
U. S. Metallic Packing Co., The 35

W

Westinghouse Air Brake Co. 33
Westinghouse Electric & Manufacturing Co. 4, 5

RYERSON *Certified* **STEELS**

RYERSON CERTIFIED STEELS

● You get uniform, high quality *Certified* Steel when you draw on the large and complete stocks of the nearby Ryerson plant. Prompt shipment assured. Write for Stock List. Joseph T. Ryerson & Son, Inc., Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

Principal Products Include:

Structurals
Lewis Iron
Plates
Sheets
Strip
Alloys
Cold Finished Steel
Tool Steel
Stainless
Mechanical Tubing
Boiler Tubes
Welding Rod
Babbit Solder
Reinforcing
Nails, Rivets, etc.

Quick
AND
Easy
TO APPLY
SYMINGTON
AAR

WHEN REPLACEMENTS ARE NEEDED

ORDER *Symington* LIDS

Symington Journal Box Lids are designed for quick and easy application. No special tools are required. Shipped ready to apply. Average installation takes only a minute per lid. For Separate or Integral Journal Boxes.

OVER 40 YEARS OF RESEARCH AND DEVELOPMENT OF RAILWAY EQUIPMENT

HE SYMINGTON-GOULD CORPORATION

Works: ROCHESTER & DEPEW, NEW YORK

York • Chicago • St. Louis • Baltimore • Boston • San Francisco • *In Canada:* ADANAC SUPPLIES, LTD., Montreal, Que.

ANOTHER BOTTLENECK BROKEN

With G-R-S Centralized Traffic Cont

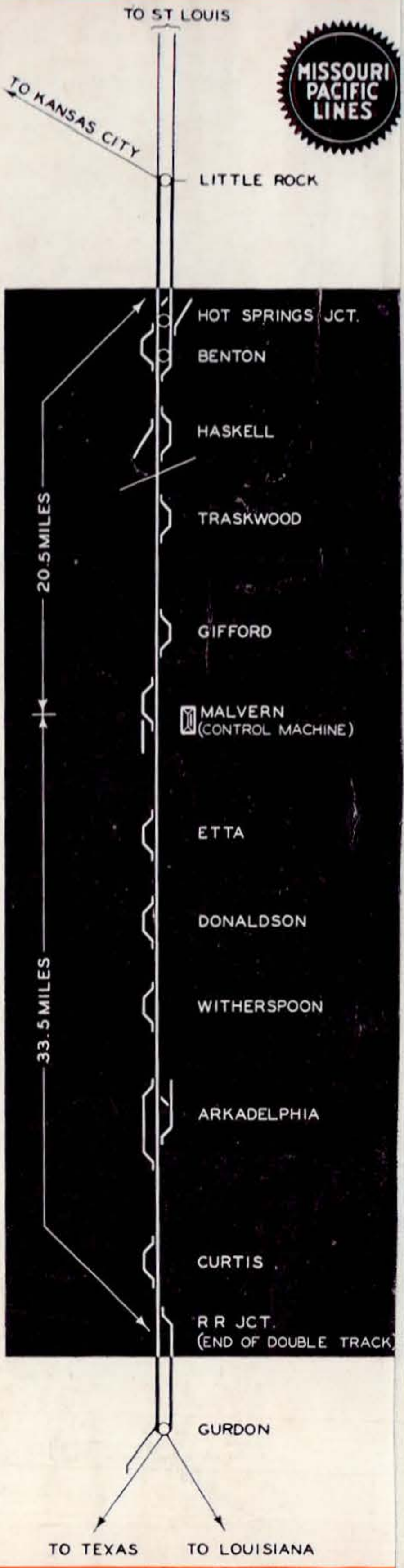
When you have 12 scheduled passenger trains, 8 scheduled red-ball freights, with additional extras bringing your traffic up to 40 or 42 trains per day, all using 50 miles of single track which links two stretches of double track—you are likely to have a bottleneck.

This is what the Missouri Pacific encountered between Benton and Gurdon, Arkansas. Traffic from California, Mexico and Texas was handled over this route by timetable superiority and train orders. Block signaling had improved safety of train operation, but "there were numerous delays in making meets, especially when the trains were bunched and some were off schedule." (Railway Signaling, June, 1941, p. 305).

The G-R-S Centralized Traffic Control System was placed in service November, 1940, between Hot Springs Jct. and Etta. It was extended to Gurdon in February of this year.

Trains now move in and out of sidings without delay, as ends of passing sidings are power-operated. Timetable superiority and train orders have been eliminated. Meets and passes are governed by signal indications which are controlled by the operator at Malvern.

G-R-S cTc has smashed another bottleneck!



TO ST LOUIS
TO KANSAS CITY
MISSOURI PACIFIC LINES
LITTLE ROCK
HOT SPRINGS JCT.
BENTON
HASKELL
TRASKWOOD
20.5 MILES
GIFFORD
MALVERN (CONTROL MACHINE)
ETTA
DONALDSON
33.5 MILES
WITHERSPOON
ARKADELPHIA
CURTIS
R R JCT. (END OF DOUBLE TRACK)
GURDON
TO TEXAS
TO LOUISIANA

GENERAL RAILWAY SIGNAL COMPANY

New York — San Francisco — **ROCHESTER, N. Y.** — Chicago — St. Louis — A-1587